



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE THE APPLICATION OF:

Inventor : Mitchell R. Swartz

Serial no. 09/750, 480

Filed: 12/28/00

For: **METHOD AND APPARATUS  
TO MONITOR LOADING  
USING VIBRATION**

This is a continuation of Serial no. 07/371,937

Filed: 06/27/89

Commissioner for Patents  
Alexandria, VA 22313-1450

PAPER:  
Group Art Unit: 3641  
Examiner: R. Palabrica

RECEIVED

RECEIVED

JUL - 9 2004

IPE / JCWS

July 2, 2004

2PM JUL - 7 PM 3:59

BOARD OF PATENT APPEALS  
AND INTERFERENCES

Office of the Clerk  
Board Of Patent Appeals  
c/o The Commissioner for Patents  
Alexandria, VA 22313-1450

To Whom it Does Concern:

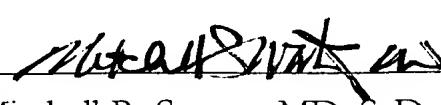
1. Attached hereto is Appellant's Appeal Brief (in triplicate), containing a Certificate of Service on the last page thereof, containing Appellant's Appendix of the Claims attached thereto, Also Appellant's Certificate of Mailing, and a second check.
2. Furthermore, we are very disappointed that Mr. Palabrica and Mr. Carone appear to have withheld one or more Appeal Briefs submitted to the Board.

As a result of what is a growing impropriety, I hereby with this letter do formally request an investigation into Mr. Palabrica and his superiors regarding their systematic failure to be absolutely truthful in federal documents and regarding their failure to abide by the normal standards of review.

Thank you for your time and attention to this important matter.

If anything further is needed, please let me know at the earliest convenience.

Sincerely,

  
Mitchell R. Swartz, MD, ScD



## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE THE APPLICATION OF:

Inventor : Mitchell R. Swartz

Serial no. 09/750, 480

Filed: 12/28/00

For: **METHOD AND APPARATUS  
TO MONITOR LOADING  
USING VIBRATION**

This is a continuation of Serial no. 07/371,937

Filed: 06/27/89

PAPER:

Group Art Unit: 3641

Examiner: R. Palabrica

July 2, 2004

Office of the Clerk  
Board Of Patent Appeals  
c/o The Commissioner for Patents  
Alexandria, VA 22313-1450

RECEIVED  
2004 JUL - 7 PM 3:59  
BOARD OF PATENT APPEALS  
AND INTERFERENCES

## CERTIFICATE OF MAILING

Appellant hereby certifies that this Appeal Brief (Original and 2 copies) containing an Appendix of the Claims has been deposited with the United States Postal Service by First Class Mail, postage prepaid, in an envelope addressed to "Office of the Clerk, Board Of Patent Appeals, c/o The Commissioner for Patents, Alexandria, VA 22313-1450" on the date below.

July 2, 2004

  
Mitchell Swartz, *pro se*, Appellant



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE THE APPLICATION OF:

Inventor : Mitchell R. Swartz

Serial no. 09/750, 480

Filed: 12/28/00

For: **METHOD AND APPARATUS  
TO MONITOR LOADING  
USING VIBRATION**

This is a continuation of Serial no. 07/371,937

Filed: 06/27/89

Commissioner for Patents  
Alexandria, VA 22313-1450

PAPER:

Group Art Unit: 3641

Examiner: R. Palabrica

July 2, 2004

Office of the Clerk  
Board Of Patent Appeals  
c/o The Commissioner for Patents  
Alexandria, VA 22313-1450

ORIGINAL

**APPEAL BRIEF**

RECEIVED

20<sup>TH</sup> JUL - 7 PM 3:59

BOARD OF PATENT APPEALS  
AND INTERFERENCES

165.00 op

07/12/2004 YMOLITE1 000000124 09750480

01 FC:2402

July 2, 2004



## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE THE APPLICATION OF:

Inventor : Mitchell R. Swartz

Serial no. 09/750, 480

Filed: 12/28/00

For: **METHOD AND APPARATUS  
TO MONITOR LOADING  
USING VIBRATION**

This is a continuation of Serial no. 07/371,937

Filed: 06/27/89

PAPER:

Group Art Unit: 3641

Examiner: R. Palabrica

Commissioner for Patents  
Alexandria, VA 22313-1450

July 2, 2004

## APPEAL BRIEF

REAL PARTY IN INTEREST -----	Page 2
RELATED APPEALS AND INTERFERENCES--	2
STATUS OF CLAIMS -----	3
STATUS OF AMENDMENTS -----	3
SUMMARY OF INVENTION -----	4
ISSUES -----	12
GROUPING OF CLAIMS -----	13
ARGUMENT - 35 U.S.C. 112 (first paragraph) -----	14
ARGUMENT - 35 U.S.C. 112 (second paragraph) -	54
ARGUMENT - 35 U.S.C. 102 -----	71
ARGUMENT - 35 U.S.C. 103 -----	86
ARGUMENT - 35 U.S.C. 101 -----	106
ARGUMENT - Other issues	135
CONCLUSION AND SUMMARY -----	141
CERTIFICATE OF MAILING -----	144
APPENDIX "A" -----	145
APPENDIX "B" -----	147
APPENDIX "C" -----	149
APPENDIX "D" -----	151

**(1) Real Party In Interest**

The party named in the caption of the brief is the real party in interest:

Mitchell R. Swartz, ScD, MD, EE, Appellant, *pro se*

**(2) Related Appeals And Interferences**

Appellant is not certain if Appellant's other cases presently or previously before the Board may or may not directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal. Appellant has attempted to comply with each previously directive of the Board.

The concept of loading hydrogen in metals, in the heat generated, in the measurement of said loading, and in several of Appellant's inventions associated with that subject matter in the following.

Appeal No. 98-2593 regarding the specification and claims of application serial number 08-406,457

Appeal No. 97-3208 regarding the specification and claims of application serial number 07-339,976

Appeal No. 94-2921 regarding the specification and claims of application serial number 07-371,937

Appeal No. 94-2920 regarding the specification and claims of application serial number 07-760,970

Appeal No. 03- (just filed, number not known) regarding the specification and claims of application serial number 09-748,695

Appeal No. 03- (just filed, number not known) regarding the specification and claims of application serial number 09-748,691

**(3) Status Of Claims**

Claims 1-20 (all claims) stand rejected pursuant to 35 U.S.C. 112, first paragraph.

Claims 1-20 (all claims) stand rejected pursuant to 35 U.S.C. 112, second paragraph.

Claims 1, 3-7 stand rejected pursuant to 35 U.S.C. 102(b).

Claims 8-20 stand rejected pursuant to 35 U.S.C. 103(a).

Claims 1-20 stand rejected pursuant to 35 U.S.C. 101.

**(4) Status Of Amendments**

Claims 1-20 remain in this application.

Claims 1, 8, 10, 14, and 17 were submitted for amendment based upon Examiner's comments, to satisfy all rejections under 35 U.S.C. 112, second paragraph and to fully comply with the Examiner's comments regarding 35 USC 112, second paragraph. Said Amendments were submitted after Final in January 2004, and were timely filed. Said Amendments were made, with request for entry, so as to place the above-entitled application in better form for this appeal by materially reducing and simplifying the issues. Attached is the office stamp of the Post Office proving timely receipt by the Office [Exhibit "C"]. A Petition to the Commissioner is also pending.

Said Amendments are listed herein, as Appendix "B".

## (5) Summary Of Invention

The invention at issue in this case, '480, claimed by Claims 1-20, is generally speaking a vibrating electrode composed of a metal such as palladium which has the unique property of internally filling ("loading") with hydrogen, as a sponge fills with water. The 'vibrational electrode' is monitored for its natural frequency to reveal information about the electrode, specifically for information about "how much" hydrogen is within the electrode based upon a mass change of said electrode that results from said loading. This *in situ* monitoring occurs non-invasively and without disturbing the reactions - which are features of great and significant utility. As the original specification and claims [Appl. 07/371,937 and now '480 as a Continuation] teach, the invention solves the long-standing problem of monitoring the electrode.

This monitoring of loading used to be complicated and invasive and has actually involved stopping the desired reactions underway, then electrically uncoupling the electrode, "thereby not only stopping the reaction, but also cross-contaminating both the cathode and the laboratory" by physically removing the electrode, drying it off, and actually weighing it on a scale -- before returning it to the disrupted electrical circuit. With Applicant's invention, it is unnecessary to interrupt the electrical circuit because in the present invention means are provided to vibrate the electrode and, simply put, the 'vibrational cathode' is monitored to reveal information about the electrode. This monitoring occurs remotely and non-invasively and without disturbing the reactions - features of great utility. These functions and uses and configurations are novel and non-obvious features of great utility as documented by affiants.

The claims of this application are respectfully submitted to be patentable over the cited references because:

One major focus of the present invention is to overcome the problem of in-situ monitoring of the loading (i.e.. volumetric filling) of a palladium cathode, which is filled with a dissimilar (with respect to the electrode) material: an isotope of hydrogen, deuterium, for use as a fuel in this fusion system. Monitoring of the volumetric loading of deuterium into palladium is a problem -- one that "exists" most notably by its absence in the very prior art cited by the Office. The independent claims, and hence all claims, recite a novel method and system to monitor the loading of isotopic fuel and accelerate electrochemically induced nuclear fusion reactions.

As the original specification states (page 17, lines 17-22; where the pages are as numbers in the original specification), the invention is defined as an

**"A method to monitor loading using a vibration includes a novel cathode able to vibrate. The method and apparatus includes means to drive said frequency, and means to monitor said frequency, means to relate frequency changes to changes in the cathodic mass which herald loading. In one configuration said means to vibrate said cathode occurs by an applied external magnetic field intensity."**

As the original specification states (page 4, lines 14-18), the present invention is quite useful for several reasons to those skilled in the art because

**"(p)resent methods to monitor the changes of deuterium loading into palladium (and other metals) are made difficult in that the material must be removed from the reaction chamber, thereby not only stopping the reaction, but also cross-contaminating both the cathode and the laboratory."**

The original specification teaches (page 3, lines 22-29; and page 17, lines 10-15) for those skilled in the art the range of subject matter defined by each of the rejected claims.

**"The present invention relates to electrochemical reactions in or about metals, such as palladium which has been electrochemically loaded with deuterium, but it has relevance as well, to hydrogen storage devices, fuel cells, nuclear fusion, metallurgy, and other reactions in pressure-loaded metals such as titanium or palladium filled with deuterium, and to the broader field of metallurgy and engineering in or about metals, including Groups IVb, Vb, and some rare earths."**

**"The present invention relates to processes and systems involving loading, such as palladium internally filling ["loading"] with deuterons, but it has relevance as well, to deuteron storage devices using deuterium (an isotope of hydrogen), to fuel cells, to nuclear fusion, to metallurgy, and to systems using loading. The method to monitor loading using a vibration includes a novel cathode able to vibrate at a natural frequency, means to drive said frequency, and means to monitor said frequency, means to relate frequency changes to changes in the cathodic mass which herald loading."**

The original specification (page 41, lines 1-3), continues with the teaching of why this invention has great utility

**"Deuteron (an isotope of hydrogen) storage devices, fuel cells, and other systems offer the opportunity of improved energy utilization. It is well known that deuterons are soluble in palladium and other metals. Unlike the other metals, palladium has a deuteron solubility that falls rapidly as the temperature rises, while the rate of diffusion increases (Hampel). However, the process is complicated. It must be followed to maximize the likelihood of the desired reactions.**

**.... Accordingly, it is a principal object of the present invention to provide a novel method and system to monitor loading. Specifically, the loading is monitored in situ.**"

The original specification continues, with an overview of instructions taught for producing the desired result (page 4, lines 25-30),

**"The system includes a novel cathode able to vibrate at a natural frequency, means to drive said frequency, and means to monitor said frequency, means to relate frequency changes to changes in the cathodic mass which heralds loading. In one configuration said means to vibrate said cathode occurs by an applied external magnetic field intensity."**

The original specification teaches (page 6, lines 14-18) the best mode contemplated by the inventor of carrying out his invention with respect to the vibrating cathode (referring to the figures).

**"Figure 1 is a simplified three-dimensional diagram of the reaction monitoring system, showing an electrochemically loading system ("reaction system") containing the vibrating cathode, and accompanied by the optical monitoring system and the orthogonal magnetic pumping coil."**

The original specification then continues and teaches (page 6, lines 21-24), the best mode contemplated by the inventor of carrying out his invention using an electrochemical system used to load the metal.

**"Within the reaction chamber (labeled as number 16) is the platinum anode (labeled a number 60), and the palladium cathode (labeled as number 1). These electrodes are driven by an external electrical power system (labeled as number 50)."**

The original specification teaches (page 7, lines 1-8) and elaborates for those skilled in the art to make and use a vibrational system to measure loading.

**"The cathode (labeled as number 1) has a variety of positions of which three are shown. These displacements are greatly magnified in Figure 1. For simplicity the reactor (16) is filled to the top. Not shown are the mechanical system which enables said cathode to vibrate between said displacements, or the cover of the reactor."**

**"When this novel cathode does move, it interferes with an optical beam (labeled as number 12 in Figure 1)."**

The original specification teaches (page 7, line 10 through 14), the best mode contemplated by the inventor of carrying out his invention using the optical subsystem (referring to the figures).

**"The optical beam originates from an optical laser contained in an optical irradiator subsystem (labeled as number 30) and is detected electrooptically by an optical detection subsystem (labeled as number 31). The photodetector and associated equipment are not shown in this figure."**

The original specification teaches (page 7, lines 16-19) and elaborates for those skilled in the art to make and use the subject matter defined by each of the rejected claims.

**"The repetitive cutoff of the optical beam occurs due to the physical displacement of the cathode during an oscillation as described herein. These oscillations may occur during the loading of said cathode, or may occur periodically."**

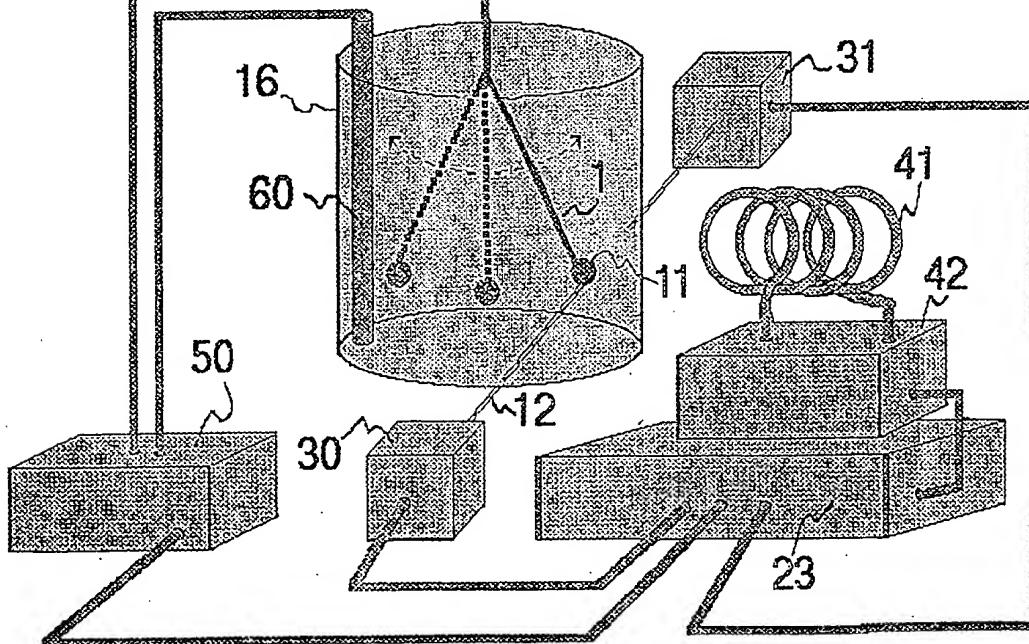
The original specification (page 7, lines 19-23), continues with the teaching of how the vibrational frequency relates to the loading.

**"The mass of the cathode (increasing by adsorption of deuterons) increases antecedent to the desired reactions, and results in a decreasing of the frequency of said oscillation (vide infra). The mass is derived from the decrease in oscillation frequency."**

The original specification then teaches (page 8, lines 1-6), the best mode contemplated by the inventor of carrying out his invention using a forced and then detected vibration of the loaded electrode (referring to the figures).

**"The frequency information is collected, and all the subunits are driven, by a central control unit (labeled as number 23). Said control unit also powers the means to drive said vibrational frequency, consisting of a power source (labeled as number 42) and a coil (labeled as number 41, of which only a few turns are shown in Figure 1)"**

FIGURE 1



In another embodiment, as the original specification teaches, the observation of the vibrating cathode can be undertaken through specially prepared windows (page 9, lines 13-15),

**"... provisions can be made for transparent windows (labeled as number 17) on said reactors. This would be done to permit monitoring of said vibrational cathode."**

The original specification continues (page 9, lines 17-19) with the teaching of the determination using conventional physics and mathematics.

**"The cathode can be modeled as a pendulum, and any analysis is simplified by considering that most of the mass resides in the large terminal portion of said cathode (labeled as number 11). The analysis can be derived from Newton's Law, from the viscous damping force, and the approximation that the cathode behaves similar to a basic mass/spring-type system."**

In one embodiment, as the original specification even continues with detailed instructions for dealing with viscosity (page 11, line 11 through 19),

**"the natural frequency of said cathode is dependent upon the viscous factor, it is only significantly altered at very high viscosity (where the Quality factor approaches zero). In the air, b would be very small, but under the conditions of the desired reactions, it is not zero within the heavy water solution. However, said viscosity is small to begin with, and the variation of viscosity with temperature shows a decrease with increasing temperature rise. The result is that the viscous damping further decreases as the loading process proceeds."**

The original specification specifically teaches and shows (page 8, lines 8-11), the best mode contemplated by the inventor of carrying out his invention (referring to the figures).

**"Figure 2 shows a vertical two-dimensional cross-sectional slice of the reaction cell with the optical monitoring system, located on the extreme right and left of said Figure. The cathode is shown centrally as a vertical rod (labeled as number 1), connected to a lower large mass (labeled as number 11).**

The original specification teaches (page 9, lines 1-11), other modes contemplated by the inventor of carrying out his invention (referring to the figures).

**Figure 2 shows that the cathode may be covered over a fraction of its surface by another "springy" material so as to alter the resonant frequency of the vibrating cathode. Said material is labeled as number 13. Said material thereby forms a single composite mass with either the cathode (e.g. palladium) or a wire leading to said cathode (e.g. platinum). Said composite mass provides the additional possibility of forming a structural bonding to, and an electrical insulation from, a large mass (labeled as number 14), located outside of the reaction cell. Said reinforcing material (13) may even be bolted (labeled as number 15) to said large external mass (labeled as number 14)."**

The original specification teaches (page 8, lines 16-26, and then on page 12 lines 26-28) in detail the components and physical arrangement of subsystems for those skilled in the art the subject matter defined by each of the rejected claims.

**"The optical beam (labeled as number 12) is shown passing directly in front of the cathode. Part of the cathode is hidden in the figure due to the beam. The optical beam is provided by a laser (labeled as number 18), and is directed by appropriate optical lenses and/or beam splitters (labeled as number 19) located in the optical subsystems. Said beam is detected by the detector subsystem, containing the optical detectors (e.g. a phototransistor (labeled as number 20), an event detector (e.g. Schmidt trigger) to detect transitions (labeled as number 21) and a frequency counter (labeled as number 22). The optical subsystems are controlled by the control unit (labeled as number 23)"**

**"Because the natural frequency can be counted with a laser beam and photodetector (coupled to a trigger and frequency counter), an accurate in situ determination of frequency is possible."**

The original specification teaches (page 14 lines 1-8) for those skilled in the art the subject matter defined by each of the rejected claims regarding the electric and magnetic fields in the present invention.

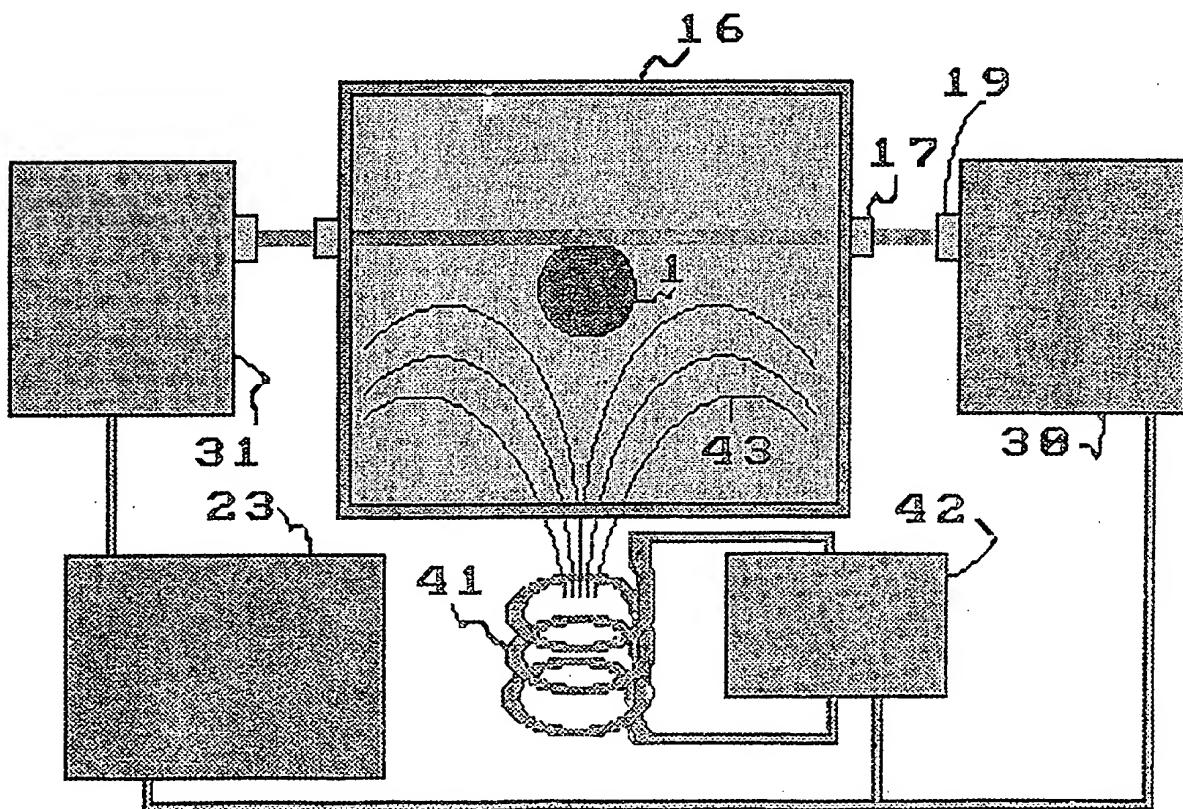
**"... The optical irradiator subsystem and optical detection subsystem are labeled as numbers 30 and 31. In the configuration shown in figure 3, said cathode (labeled as number 1) is electromagnetically driven by the transverse magnetic coil (labeled as number 41). For the monitoring configuration, said cathode is driven periodically by the driving subsystem (labeled as number 42) to produce a magnetic field intensity (with flux lines labeled as number 43) located in the vicinity of said cathode (1)."**

The original specification (page 14, lines 10-13), continues with the teaching of how the apparatus operates with respect to the magnetic fields.

**"The magnetic field is stored energy. The total energy of the whole system (magnetic field, reactor, vibrating cathode, etc.) is minimized by motion of said cathode. Hence the vibrations are created. Mathematically, the magnetic force is obtained from taking the derivative of the magnetic energy as a function of the cathodes displacement."**

The original specification teaches (page 14, lines 17-20) for those skilled in the art the subject matter with detailed instructions for producing the desired result,

**"Turning to Figure 4, a highly (magnetically) permeable material (labeled as number 50) can be mounted as a core in said external coil (labeled as number 41), with a continuation of said highly permeable material circumferentially around the reactor. In Figure 4 the reactor (labeled as number 16) is shown modified so as to minimize the distance between said cathode (labeled as number 1) and said highly permeable material (labeled as number 50)."**



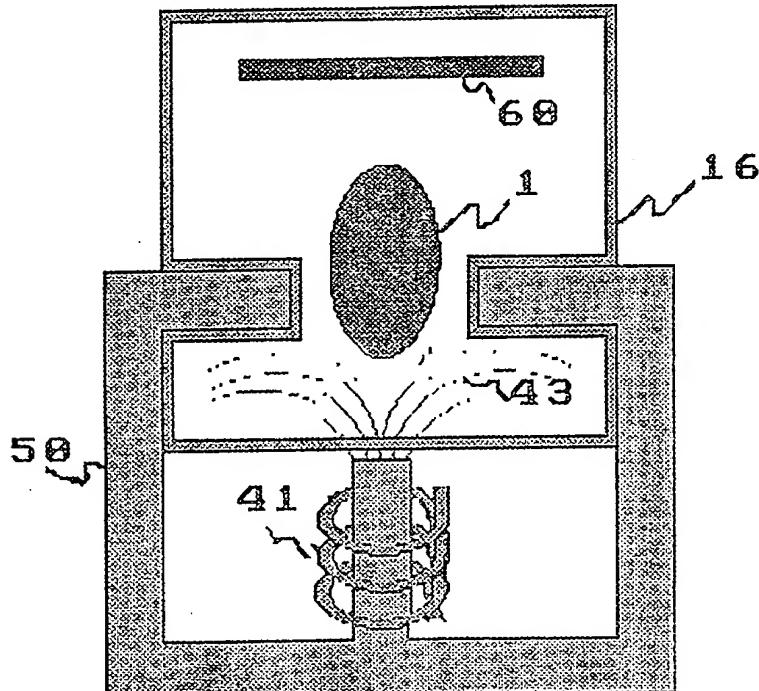
The original specification teaches (page 13, lines 21-24 and page 14, lines 25-27) for those skilled in the art the subject matter with detailed instructions for producing the desired result,

"Turning now to Figure 3, shown is the horizontal two-dimensional slice through the reaction cell showing the optical monitoring system and the orthogonal magnetic pumping coil. The view is through the top of the reactor (labeled as number 16). The vertical cathode appear as a round central dot (labeled as number 1). For simplicity, the anode, the electrical interconnections, and electric drive system are not shown."

**"The magnetic susceptibility of palladium and deuteron-filled palladium (or other metal) is what creates the energy transfer to the vibrational frequency of the cathode. Table 3 presents the relevant susceptibilities."**

In another embodiment, as the original specification continues, detailed instructions are taught involving other configurations to produce the desired result (page 15, lines 25-30,

**"Another monitoring configuration involves using said external magnetic field intensity to align the magnetic moments of the deuterons within said cathode. The application of a suitable radio-frequency power source and the ability to measure the power absorption also enables the cathode to have its intravolumetric deuteron population measured in situ."**



In another embodiment, the original specification teaches an variation (page 16, lines 1-6),

"Yet another monitoring configuration involves the use of a second external mass coupled to the above cited large external mass. Forced mechanical vibration of said second external mass will eventually couple phonons to the cathode and thereby cause it to vibrate at its own natural frequency. The monitoring system would be similar to that described above."

## ISSUES

### **35 U.S.C. 112 (first paragraph)**

Whether claims 1-20 are patentable under U.S.C. §112.

### **35 U.S.C. 112 (second paragraph)**

Whether claims 1-20 are patentable under U.S.C. §112 (second paragraph).

### **35 U.S.C. 102**

Whether claims 1, 3-7 are patentable under U.S.C. §102.

### **35 U.S.C. 103**

Whether claims 8-20 are patentable under U.S.C. §103.

### **35 U.S.C. 101**

Whether claims 1-20 are patentable under U.S.C. §101.

### **1.192c(6)(v)**

Whether the Office has shown good-faith execution of MPEP 707.07(j) and MPEP 706.03(d).

### (7) Grouping Of Claims

Claim 1 distinguishes and limits the invention to a method, in which a material is electrochemically loaded with second material, to monitor the loading that comprises loading said second material, driving a mechanical vibration of said material loaded with second material, monitoring the frequency of said vibration, and then relating said frequency of said vibration to the mass of said material. This will be discussed in each Arguments section.

Claim 8 distinguishes and limits the invention to a method of monitoring the loading within said material that comprises loading said second material, mechanically driving said material so as to enable a mechanical vibrations of said material, providing means to produce said vibrations, providing means to detect the frequency of said vibrations, and relating said frequency to the mass of said material. This will be discussed in each Arguments section.

Claim 17 distinguishes and limits the invention to an apparatus to monitor the loading of a material by a second material which includes in combination means to load said second material, means to enable mechanical vibrations of said material loaded with said second material, means to drive said vibrations, means to monitor the frequency of said vibrations, and means to relate said frequency to the mass of said material. This will be discussed in each Arguments section.

The appealed Claims 1, 8, and 17 are separately patentable and do not stand or fall together because they are materially distinct, are not unduly multiplied, are each patentable, and have separate limitations, as recited in the claims. These reasons are discussed in each Arguments section.

The appealed Dependent Claims are also separately patentable and do not stand or fall together because they are materially distinct, are not unduly multiplied, are each patentable, and have separate limitations, as recited in the claims. These reasons are discussed in each Arguments section.

## ARGUMENTS

### 35 USC §112 First Paragraph Rejection

1. Claims 1-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the "enablement requirement". Appellant submits that the Applicant has shown operability under 35 U.S.C. 112, first paragraph. For each rejection under 35 U.S.C. 112, first paragraph, the Appellant below does fully and completely specify the many errors in the rejection, including how Appellant (then Applicant) timely provided evidence surmounting the Examiner's incorrect arguments and cited law surmounting the Examiner's arguments that are without legal foundation and not the normal standards of review. The Appellant's arguments can be divided into three groups. First, those errors of the Office that involve the invention itself. Second, there are those errors which involve the art to which the Office does refer. Third, the Appellant will discuss the standards of review from which the Office's behavior does deviate.

2. The appealed claims do not stand or fall together. Claims 1, 8, and 17 are separately patentable and do not stand or fall together because they are materially distinct with respect to 35 USC 112 first paragraph. Claims 1, 8, and 17 are separately patentable and do not stand or fall together because the claims are not unduly multiplied and have separate limitations, as recited in the claims.

Claim 1 distinguishes and limits the invention to a method, in which a material is electrochemically loaded with second material, to monitor the loading that comprises loading said second material, driving a mechanical vibration of said material loaded with second material, monitoring the frequency of said vibration, and then relating said frequency of said vibration to the mass of said material.

Claim 8 distinguishes and limits the invention to a method of monitoring the loading within said material that comprises loading said second material, mechanically driving said material so as to enable a mechanical vibrations of said material, providing means to produce said vibrations, providing means to detect the frequency of said vibrations, and relating said frequency to the mass of said material.

Claim 17 distinguishes and limits the invention to an apparatus to monitor the loading of a material by a second material which includes in combination means to load said second material, means to enable mechanical vibrations of said material loaded with said second material, means to drive said vibrations, means to monitor the frequency of said vibrations, and means to relate said frequency to the mass of said material.

3. As the original specification states (page 17, lines 17-22; where the pages are as numbers in the original specification), the invention is defined as an

**"A method to monitor loading using a vibration includes a novel cathode able to vibrate. The method and apparatus includes means to drive said frequency, and means to monitor said frequency, means to relate frequency changes to changes in the cathodic mass which herald loading. In one configuration said means to vibrate said cathode occurs by an applied external magnetic field intensity."**

As the original specification states (page 4, lines 14-18), the present invention is quite useful for several reasons to those skilled in the art because

**"(p)resent methods to monitor the changes of deuterium loading into palladium (and other metals) are made difficult in that the material must be removed from the reaction chamber, thereby not only stopping the reaction, but also cross-contaminating both the cathode and the laboratory."**

The original specification teaches (page 3, lines 22-29; and page 17, lines 10-15) for those skilled in the art the range of subject matter defined by each of the rejected claims.

**"The present invention relates to electrochemical reactions in or about metals, such as palladium which has been electrochemically loaded with deuterium, but it has relevance as well, to hydrogen storage devices, fuel cells, nuclear fusion, metallurgy, and other reactions in pressure-loaded metals such as titanium or palladium filled with deuterium, and to the broader field of metallurgy and engineering in or about metals, including Groups IVb, Vb, and some rare earths."**

**"The present invention relates to processes and systems involving loading, such as palladium internally filling ["loading"] with deuterons, but it has relevance as well, to deuteron storage devices using deuterium (an isotope of hydrogen), to fuel cells, to nuclear fusion, to metallurgy, and to systems using loading. The method to monitor loading using a vibration includes a novel cathode able to vibrate at a natural frequency, means to drive said frequency, and means to monitor said frequency, means to relate frequency changes to changes in the cathodic mass which herald loading."**

The original specification (page 41, lines 1-3), continues with the teaching of why this invention has great utility

**"Deuteron (an isotope of hydrogen) storage devices, fuel cells, and other systems offer the opportunity of improved energy utilization. It is well known that deuterons are soluble in palladium and other metals. Unlike the other metals, palladium has a deuteron solubility that falls rapidly as the temperature rises, while the rate of diffusion increases (Hampel). However, the process is complicated. It must be followed to maximize the likelihood of the desired reactions.**

.... Accordingly, it is a principal object of the present invention to provide a novel method and system to monitor loading. Specifically, the loading is monitored in situ."

The original specification continues, with an overview of instructions taught for producing the desired result (page 4, lines 25-30),

"The system includes a novel cathode able to vibrate at a natural frequency, means to drive said frequency, and means to monitor said frequency, means to relate frequency changes to changes in the cathodic mass which heralds loading. In one configuration said means to vibrate said cathode occurs by an applied external magnetic field intensity."

The original specification teaches (page 6, lines 14-18) the best mode contemplated by the inventor of carrying out his invention with respect to the vibrating cathode (referring to the figures).

"Figure 1 is a simplified three-dimensional diagram of the reaction monitoring system, showing an electrochemically loading system ("reaction system") containing the vibrating cathode, and accompanied by the optical monitoring system and the orthogonal magnetic pumping coil."

The original specification then continues and teaches (page 6, lines 21-24), the best mode contemplated by the inventor of carrying out his invention using an electrochemical system used to load the metal.

"Within the reaction chamber (labeled as number 16) is the platinum anode (labeled a number 60), and the palladium cathode (labeled as number 1). These electrodes are driven by an external electrical power system (labeled as number 50)."

The original specification teaches (page 7, lines 1-8) and elaborates for those skilled in the art to make and use a vibrational system to measure loading.

"The cathode (labeled as number 1) has a variety of positions of which three are shown. These displacements are greatly magnified in Figure 1. For simplicity the reactor (16) is filled to the top. Not shown are the mechanical system which enables said cathode to vibrate between said displacements, or the cover of the reactor."

"When this novel cathode does move, it interferes with an optical beam (labeled as number 12 in Figure 1)."

The original specification teaches (page 7, line 10 through 14), the best mode contemplated by the inventor of carrying out his invention using the optical subsystem (referring to the figures).

**"The optical beam originates from an optical laser contained in an optical irradiator subsystem (labeled as number 30) and is detected electrooptically by an optical detection subsystem (labeled as number 31). The photodetector and associated equipment are not shown in this figure."**

The original specification teaches (page 7, lines 16-19) and elaborates for those skilled in the art to make and use the subject matter defined by each of the rejected claims.

**"The repetitive cutoff of the optical beam occurs due to the physical displacement of the cathode during an oscillation as described herein. These oscillations may occur during the loading of said cathode, or may occur periodically."**

The original specification (page 7, lines 19-23), continues with the teaching of how the vibrational frequency relates to the loading.

**"The mass of the cathode (increasing by adsorption of deuterons) increases antecedent to the desired reactions, and results in a decreasing of the frequency of said oscillation (vide infra). The mass is derived from the decrease in oscillation frequency."**

The original specification then teaches (page 8, lines 1-6), the best mode contemplated by the inventor of carrying out his invention using a forced and then detected vibration of the loaded electrode (referring to the figures).

**"The frequency information is collected, and all the subunits are driven, by a central control unit (labeled as number 23). Said control unit also powers the means to drive said vibrational frequency, consisting of a power source (labeled as number 42) and a coil (labeled as number 41, of which only a few turns are shown in Figure 1)"**

In another embodiment, as the original specification teaches, the observation of the vibrating cathode can be undertaken through specially prepared windows (page 9, lines 13-15),

**"... provisions can be made for transparent windows (labeled as number 17) on said reactors. This would be done to permit monitoring of said vibrational cathode."**

The original specification continues (page 9, lines 17-19) with the teaching of the determination using conventional physics and mathematics.

**"The cathode can be modeled as a pendulum, and any analysis is simplified by considering that most of the mass resides in the large terminal portion of said cathode (labeled as number 11). The analysis can be derived from Newton's Law, from the viscous damping force, and the approximation that the cathode behaves similar to a basic mass/spring-type system."**

In one embodiment, as the original specification even continues with detailed instructions for dealing with viscosity (page 11, line 11 through 19),

**"the natural frequency of said cathode is dependent upon the viscous factor, it is only significantly altered at very high viscosity (where the Quality factor approaches zero). In the air, b would be very small, but under the conditions of the desired reactions, it is not zero within the heavy water solution. However, said viscosity is small to begin with, and the variation of viscosity with temperature shows a decrease with increasing temperature rise. The result is that the viscous damping further decreases as the loading process proceeds."**

The original specification specifically teaches and shows (page 8, lines 8-11), the best mode contemplated by the inventor of carrying out his invention (referring to the figures).

**"Figure 2 shows a vertical two-dimensional cross-sectional slice of the reaction cell with the optical monitoring system, located on the extreme right and left of said Figure. The cathode is shown centrally as a vertical rod (labeled as number 1), connected to a lower large mass (labeled as number 11)."**

The original specification teaches (page 9, lines 1-11), other modes contemplated by the inventor of carrying out his invention (referring to the figures).

**Figure 2 shows that the cathode may be covered over a fraction of its surface by another "springy" material so as to alter the resonant frequency of the vibrating cathode. Said material is labeled as number 13. Said material thereby forms a single composite mass with either the cathode (e.g. palladium) or a wire leading to said cathode (e.g. platinum). Said composite mass provides the additional possibility of forming a structural bonding to, and an electrical insulation from, a large mass (labeled as number 14), located outside of the reaction cell. Said reinforcing material (13) may even be bolted (labeled as number 15) to said large external mass (labeled as number 14)."**

The original specification teaches (page 8, lines 16-26, and then on page 12 lines 26-28) in detail the components and physical arrangement of subsystems for those skilled in the art the subject matter defined by each of the rejected claims.

"The optical beam (labeled as number 12) is shown passing directly in front of the cathode. Part of the cathode is hidden in the figure due to the beam. The optical beam is provided by a laser (labeled as number 18), and is directed by appropriate optical lenses and/or beam splitters (labeled as number 19) located in the optical subsystems. Said beam is detected by the detector subsystem, containing the optical detectors (e.g. a phototransistor (labeled as number 20), an event detector (e.g. Schmidt trigger) to detect transitions (labeled as number 21) and a frequency counter (labeled as number 22). The optical subsystems are controlled by the control unit (labeled as number 23)"

"Because the natural frequency can be counted with a laser beam and photodetector (coupled to a trigger and frequency counter), an accurate in situ determination of frequency is possible."

The original specification teaches (page 14 lines 1-8) for those skilled in the art the subject matter defined by each of the rejected claims regarding the electric and magnetic fields in the present invention.

"... The optical irradiator subsystem and optical detection subsystem are labeled as numbers 30 and 31. In the configuration shown in figure 3, said cathode (labeled as number 1) is electromagnetically driven by the transverse magnetic coil (labeled as number 41). For the monitoring configuration, said cathode is driven periodically by the driving subsystem (labeled as number 42) to produce a magnetic field intensity (with flux lines labeled as number 43) located in the vicinity of said cathode (1)."'

The original specification (page 14, lines 10-13), continues with the teaching of how the apparatus operates with respect to the magnetic fields.

"The magnetic field is stored energy. The total energy of the whole system (magnetic field, reactor, vibrating cathode, etc.) is minimized by motion of said cathode. Hence the vibrations are created. Mathematically, the magnetic force is obtained from taking the derivative of the magnetic energy as a function of the cathodes displacement."

The original specification teaches (page 14, lines 17-20) for those skilled in the art the subject matter with detailed instructions for producing the desired result,

"Turning to Figure 4, a highly (magnetically) permeable material (labeled as number 50) can be mounted as a core in said external coil (labeled as number 41), with a continuation of said highly permeable material circumferentially around the reactor. In Figure 4 the reactor (labeled as number 16) is shown modified so as to minimize the distance between said cathode (labeled as number 1) and said highly permeable material (labeled as number 50)."

The original specification teaches (page 13, lines 21-24 and page 14, lines 25-27) for those skilled in the art the subject matter with detailed instructions for producing the desired result,

"Turning now to Figure 3, shown is the horizontal two-dimensional slice through the reaction cell showing the optical monitoring system and the orthogonal magnetic pumping coil. The view is through the top of the reactor (labeled as number 16). The vertical cathode appear as a round central dot (labeled as number 1). For simplicity, the anode, the electrical interconnections, and electric drive system are not shown."

"The magnetic susceptibility of palladium and deuterium-filled palladium (or other metal) is what creates the energy transfer to the vibrational frequency of the cathode. Table 3 presents the relevant susceptibilities."

In another embodiment, as the original specification continues, detailed instructions are taught involving other configurations. to produce the desired result (page 15, lines 25-30,

"Another monitoring configuration involves using said external magnetic field intensity to align the magnetic moments of the deuterons within said cathode. The application of a suitable radio-frequency power source and the ability to measure the power absorption also enables the cathode to have its intravolumetric deuterium population measured in situ."

In another embodiment, the original specification teaches an variation (page 16, lines 1-6),

"Yet another monitoring configuration involves the use of a second external mass coupled to the above cited large external mass. Forced mechanical vibration of said second external mass will eventually couple phonons to the cathode and thereby cause it to vibrate at its own natural frequency. The monitoring system would be similar to that described above."

### ***De JureProof that the Examiner is Wrong***

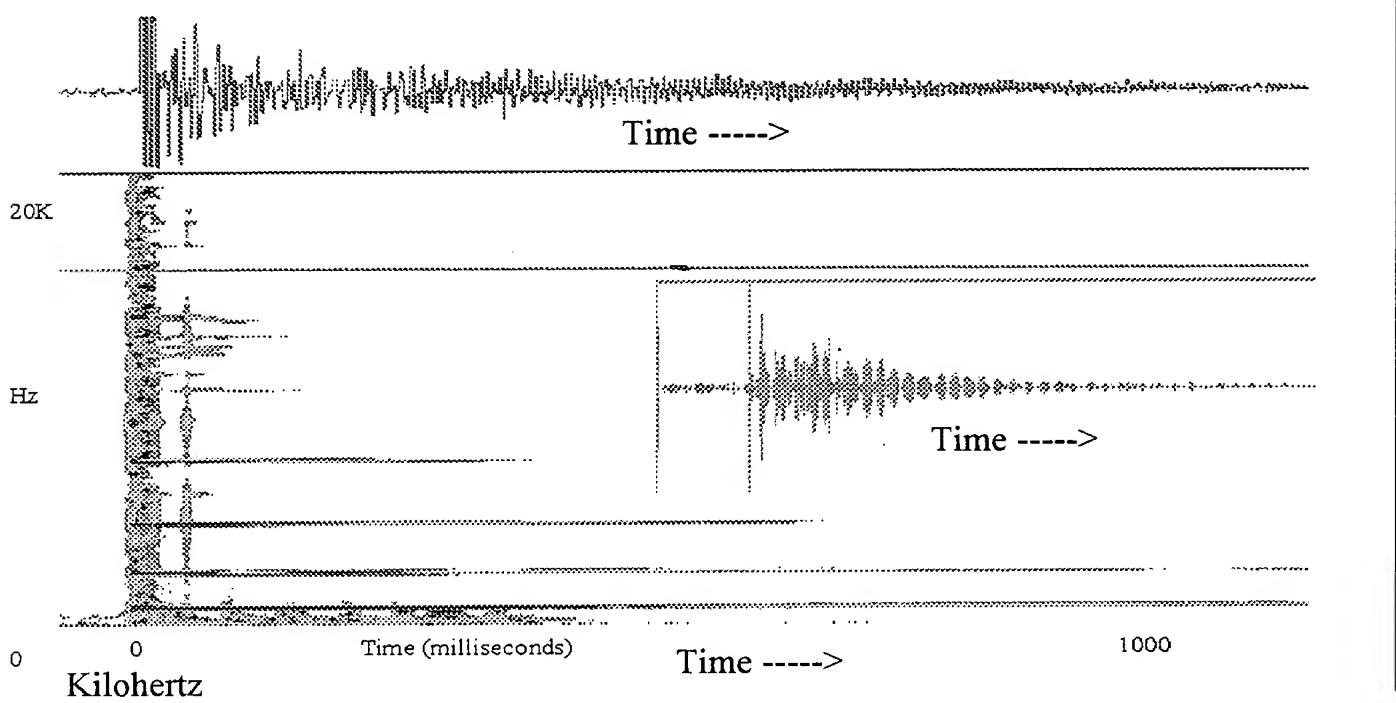
4. Ignored by the Examiner is the following argument by the Applicant citing In re Oetiker,

"The Examiner ignores In re Oetiker, 977 F.2d at 1445, 24 USPQ2d at 1444 which requires the Examiner to substantively respond with a *prima facie* case of unpatentability. However, after the submission of Swartz, M., "Possible Deuterium Production From Light water excess enthalpy experiments using Nickel Cathodes", *Journal of New Energy*, 3, 68-80 (1996) ... and the Declarations, the burden shifts back to the Office and can only be discharged by the Examiner "presenting evidence or reasons why persons skilled-in-the-art would not recognize in the disclosure a description of the invention defined by the claims" [Wertheim, 541 F.2d at 263, 191 USPQ at 97]. Applicant asks that this be done with specificity, substantively, and with explicit reference, and in detail with full findings of fact. ..."

"The Examiner should closely consider the *de jure* evidence including M Swartz, M., "Possible Deuterium Production From Light water excess enthalpy experiments using Nickel Cathodes", *Journal of New Energy*, 3, 68-80 (1996) which demonstrate(s) enablement at the time of the initial filing because validation only comes through peer-review."

[from Applicant's previous Communication to the Examiner]

The original specification describes the subject matter defined by each of the rejected claims, and enables any person skilled in the art to make and use the subject matter defined by each of the rejected claims, and sets forth the best mode contemplated by the inventor of carrying out his invention. The utility and operability -- i.e. enablement -- has been proved *de jure* and *de facto* (peer reviewed publications and Appendix "D"; including Swartz (1998), Improved Electrolytic Reactor Performance Using  $\pi$ -Notch System Operation and Gold Anodes, Transactions of the American Nuclear Association, Nashville, Tenn 1998 Meeting, (ISSN:0003-018X publisher LaGrange, Ill) 78, 84-85, Swartz. (1997), Fusion Technology, 31, 63-74, and Swartz, M., "Possible Deuterium Production From Light water excess enthalpy experiments using Nickel Cathodes", *Journal of New Energy*, 3, 68-80 (1996). From the later publication, this Figure demonstrates both utility and operability (a question of fact). The Figure convincingly demonstrates monitoring vibrational frequencies ("vibrations") of an electrode. It shows the actual vibrations (called "normal modes") by those skilled-in-the-art) of the electrode as a function of frequency and time using the teachings of the above-entitled application and claims.



### **FAST FOURIER TRANSFORM OF VIBRATING ELECTRODE**

This figure is taken from a journal which was peer-reviewed by those familiar with the state-of-the-art at the time the present original specification and claims were filed. Shown is a fast fourier spectrogram proving vibrations of the cathode, which saliently demonstrates that a vibrational mode of the loaded material does exist, as taught in the original specification and claims. It can be monitored using teachings of the original specification and claims. The figure confirms definiteness, operability, and utility.

After beginning the vibration with a single pulse at  $t=0$ , and picking up the signal with two audio transducers (top and mid-right hand side), the short-lived vibrational modes of the electrode are dramatically revealed by computed processing using a fast fourier transform (FFT; bottom and lower left; the frequencies are vertical and time is horizontal). A calibration signal ("control") was inserted at  $17,390^{+/-53}$  Hz. (the blue horizontal line approximately halfway up the image). The sampling rate was  $\sim 100$  kilohertz, and the cathode was #92-505b/Ni-B2 immersed in ordinary water using the teachings of the present original specification and claims.

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. The Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response when *Journal New Energy*, 1, 3, 68-80 (1996) which absolutely proves Applicant was correct on the filing date of the application [In re Hogan, 559 F.2d 595, 60S, 194 USPQ 527, 537 (CCPA 1977)].

### ***De Facto*Proof that the Examiner is Wrong**

5. The Examiner is the following argument by the Applicant citing the *de facto* evidence and testimony of the Declarants,

**"The Examiner should closely consider the *de facto* evidence and accept the testimony of the Declarants, skilled-in-the-art, who dispute the Examiner and attest to conformation with 35 U.S.C. §101. "**

[from Applicant's previous Communication to the Examiner]

As one example, attention is now directed to the previous Communication from the Applicant which said (but was ignored, as usual),

**"Straus (A44-A48) and Swartz (A18-A43) contained factual statements directly addressing how the specification adequately described the subject matter recited in the claims of S.N 09/750,480 and demonstrate that it operates as stated. They also herald that a person of ordinary skill in the art would have understood the inventor to have been in possession of the claimed invention at the time of filing. Simply put, the post-filing references establish that, as of the filing date, one of skill-in-the-art could use a method to monitor a vibrating electrode without undue experimentation."**

[from Applicant's previous Communication to the Examiner]

Operability was demonstrated and corroborated by declarations and testimony of individuals with "ordinary skill-in-the-art" which were, and are again, supplied, refuting the Examiner's (unsupported) position. Said Declarations included facts showing why the publications cited should not bar the grant of a patent to the inventor or the confirmation of the patentability of the claims of the patent. Applicant showed due diligence, and all Exhibits, and Declarations were satisfactorily explained. [24 FR 10332, Dec. 22, 1959; 34 FR 18857, Nov. 26, 1969; para.(a), 48 FR 2713, Jan. 20, 1983, effective Feb. 27, 1983; para. (a), 50 FR 9381, Mar. 7, 1985, effective May 8, 1985; 50 FR 11366, Mar. 21, 1985; 53 FR 23733, June 23, 1988, effective Sept. 12, 1988; para. (a)(1) revised and para. (a)(2) added, 60 FR 21043, May 1, 1995, effective May 31, 1995]. **The Straus declaration, and others, contained statements of fact directly addressing the issue of whether the specification adequately described the subject matter recited in the claims, whether it operated as stated, and whether a person of ordinary skill in the art would have understood the inventor to have been in possession of the claimed invention at the time of filing.** As such said Declarations contain averments regarding evidence establishing the utility, validation, and operability of the present subject matter.

Specifically, the Declarations demonstrate that with respect to vibration of the electrode -- the present invention works [For example, confer pages 6-10, 19-21 in the Swartz Declarations of September 8, 1992, and pages 2-5 in the Straus Declaration of November 27, 1992]. The Straus, Swartz, and other Declarations demonstrated teachings of the vibrational modes of the electrode as objective evidence regarding utility and enablement as explicitly taught in the original specification and claims. Thus, the Declarations, specifically provided as evidence supporting the Applicants position, have proven that an adequately written description requirement is met and they precisely refute the Decision's statements which are erroneous on these issues of operability and utility. Both enablement and validation have been shown by Declarations. Given that understanding this was sufficient for the Declarants, where is the Examiner's substantive response to Applicant's cited Declarations? Applicant specifically now cites the Swartz declaration, the Declaration of Straus (4/22/94), and the *Amicus Curiae* Briefs of Drs. Edmund Storms (2/21/01), Talbot Chubb (2/22/01), Eugene Mallove (3/24/00) and Hal Fox (2/21/01) and requests the Examiner's response with specificity.

6. Attention is now directed to the fact that the *Amicus Curiae* Brief of Talbot Chubb [Exhibit "'14", 2/22/01], *Amicus Curiae* Brief of Drs. Edmund Storms [Exhibit "'10", 2/21/01], Averment 4 in the *Amicus Curiae* Brief of Mr. Rotegard [Exhibit "'12", 2/21/01], Pages 4 through 8 in *Amicus Curiae* Brief of Thomas Valone [Exhibit "'11", 2/24/01], and pages 2-5 in the Straus Declaration [Exhibit "'8", November 27, 1992] have been ignored even though the affiants have probative value and even though the averments prove operability of the present invention.

7. Presented to, but ignored by the Examiner, the Applicant made substantive arguments rebutting the Examiner's position in Applicant's Communication dated 10/22/03 which was a significant and complete response to the Office's Communications of 7/903 and 9/27/03, and in Applicant's Communication dated 11/25/03 which was a significant and complete response to the Office's Communication of 11/5/03, and in Applicant's Communication dated 1/28/04 which was a significant and complete response to the Office's Communication of 1/13/04.

Also presented to the Office was a Petition to the Commissioner dated 1/28/04 which was a significant and complete response to the Office's Communications.

**Where is the Examiner's substantive response?**

8. Attention is now directed to the fact that said comments in Applicant's Communication have simply been substantively ignored by the Examiner. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. The Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response.

9. Also ignored by the Examiner is the following argument by the Applicant citing *In re Wands* citing with approval *Ex parte Forman*,

**"Furthermore, a method to reveal information about the loading, *in situ*, and non-invasively using a vibrating electrode, composed of a metal such as palladium which has internal filling ("loading") with hydrogen, which is monitored for its natural frequency, as was presented in the original specification and claims so that an artisan, or those skilled in the art, could practice it without undue experimentation [In re Wands, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988), citing with approval Ex parte Forman, 230 USPQ 546, 547 (Bd. Pat. App. & Int. 1986)]. Applicant has now demonstrated that his invention as claimed was, and is, adequately described to one skilled-in-the-art. Said Declarations are sufficient in their factual content with respect to the significant evidence, and prove that the Examiner is in clear error. By submitting said peer-reviewed publications, showing the Applicant is correct, and said Declarations containing relevant facts by probative witnesses, the Applicant has now undertaken the full burden coming forward with his evidence as required [In re Oetiker, 977 F.2d at 1445, 24 USPQ2d at 1444]. "**

[from Applicant's previous Communication to the Examiner]

10. Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. The Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response.

The Declarations factually demonstrate proof of operability and utility - that is, enablement, and Applicant has the right to submit them.

**"AFFIDAVITS OVERCOMING REJECTIONS 1.131 (a)(1) When any claim of an application or a patent under reexamination is rejected .... on reference to a foreign patent or to a printed publication, the inventor of the subject matter of the rejected claim ... may submit an appropriate oath or declaration to overcome the patent or publication."**

11. The Declarations demonstrate that with respect to vibration of the electrode -- the present invention works as explicitly taught in the original specification and claims. As such, said Declarations contain averments regarding evidence establishing the utility, validation, and operability of the Applicant's claimed subject matter. Said Declarations and almost four hundred references, constitute a *bona fide* case. They demonstrate validation, operability, and utility of the Applicant's claimed subject matter as correctly taught in the original specification and claims regarding said monitored vibrating electrode. Straus and Swartz contain factual statements directly addressing how the specification adequately described the subject matter recited in the claims of S.N 09/750,480 and demonstrate that it operates as stated. They also herald that a person of ordinary skill in the art would have understood the inventor to have been in possession of the claimed invention at the time of filing. They substantially, extensively, and fully address matters and all issues that are criticized by the Office. The Declarations contain factual statements directly addressing how the specification adequately described the subject matter recited in the claims. They demonstrate that a person of ordinary skill in the art would have understood the inventor to have been in possession of the claimed invention at the time of filing, and that the invention operates as stated, and as explicitly taught in the original specification and claims. The Declarations prove that the Applicant taught in the original specification and claims how his apparatus works and claimed the invention.

Applicant asks the Examiner to please reconsider this matter, or explain his deviation from In re Jolles, and his ignoring the submitted Declarations and Exhibits.

12. The Examiner inaccurately states,  
*"As to the ICCF-10 press releases cited by the Applicant, he has not established any identical relationship between the apparatus described therein and his claimed invention."*

So many errors in a single statement by the Office. First, despite the statement by the Office, the Applicant did establish a relationship to written documents. Second, the exhibits, in fact, were not "press releases". Third, said "releases" were statements made by multiple individuals, unrelated to the Applicant, who observed the applicant's inventions in this field at the Massachusetts Institute of Technology [Cambridge, MA]. Attention is directed to the fact that although this demonstration lasted a week. The Office refused to send a single individual, despite being requested to send someone by the Applicant who discussed this with an Attorney of the Office.

Fourth, therefore, the statement by the Examiner is self-serving and wrong about what is "obtainable".

Fifth, and most importantly, despite the false statement above by the Office, the relevance is that the observers proved that the environment, in which the present invention does operate, exists.

Sixth, this individuals prove that those skilled-in-the-art disagree with the erroneous opinion of the Office.

13. The Examiner states,

*"On page 7,1 paragraph, the applicant states that a mechanical system enables the cathode to vibrate between displacements. There is neither a written description nor enabling disclosure of this mechanical system. (Applicant's arguments in his traverse have been fully considered but found unconvincing.)"*

#### **THE TRUTH - The Examiner Has Been Substantively Unresponsive, This was Discussed Previously**

The Examiner has been unresponsive to Applicant's arguments pointing to Figures 1-5 and the text of the original specification, even though they were fully discussed in significant detail in the previous Communication from the Applicant to the Examiner. For example, in said Communication, the Applicant took the time to respond to the Examiner and wrote the following comments.

"In differential calculus, there are known to be "normal modes" to those skilled-in-the-art. The Examiner is referred to Figure 1 which demonstrates the higher frequencies. The Examiner is also referred to "Advanced Calculus for Applications, Second Edition" by Francis Hildebrand (1976). On pages 72 through 76, and also page 88, in the section entitled "Applications to Linear Differential Equations with Constant Coefficients", there is discussed the equations that lead to these normal modes. In addition, the Examiner is referred to "Theoretical Mechanics: An Introduction To Mathematical Physics" (1929) by Joseph Ames and Francis Murnaghan. The examiner is specifically referred to pages 24 pages 124 to 139 for background on the well-known harmonic vibrations (especially page 129). In addition the Examiner is referred to "Analytical Mechanics" (1962) by Grant Fowles. The Examiner is specifically referred to pages 80 through 84 for that harmonic analytic physics, including the elementary issues resulting from restoring force, on pages 43 through 45. The examiner is referred to "Calculus and Analytical Geometry" (1951, and 1960) by George Thomas Jr. The examiner is particularly referred to pages 895 through 900 for more background on natural frequencies which apparently were not a problem for the previous Examiner, or the Declarants..."

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. Therefore, given the above, the Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response. Nonetheless, to further respond and hopefully please the examiner, the Applicant does now submit an amendment, which if the Examiner will enter, will satisfy the Examiner's comment.

14. The Examiner states,

*"There is neither an adequate description nor enabling disclosure of the parameters of a specific operative embodiment of the invention, including ... mechanical means to support the cathode at a pivot point, etc. ... (Applicant's arguments in his traverse have been fully considered but found unconvincing. Applicant has not incorporated by reference the applications that allegedly contain the above subject matter)."*

The Examiner has been unresponsive to Applicant's arguments even though they were fully discussed in significant detail in the previous Communication from the Applicant to the Examiner. For example, in said Communication, the Applicant took the time to respond to the Examiner and wrote the following comments and questions.

Attention is now directed to the fact that the "mechanical means to support the cathode at a pivot point" is shown, and in Figure 1 it is shown as a suspension, in the original specification. It is shown in Figure 2, as well. Also conveniently ignored by the Examiner are the large external mass (labeled as number 14) and bolts (labeled as number 15) which stabilize that suspension.

Does it matter that the Examiner is leads away from the original specification and claims. Apparently not. Therefore, given the above, the Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response.

Nonetheless, to further respond and hopefully please the examiner, the Applicant does now submit an amendment, which if the Examiner will enter, will satisfy the Examiner's comment.

15. The Examiner states,

*"On page 10, line 5 of the specification, the applicant provides an unnumbered equation of Motion. The disclosure is insufficient as to how and in what manner the values of the constants, k and b, are evaluated, and what approximations, if any, are used in their evaluation. (Applicant's reply is unresponsive. The Examiner was not referring to how to theoretically solve the equation, but how to determine the constants in an actual operative embodiment that the applicant has not proven to exist)."*

**THE TRUTH - The Examiner Has Been Substantively Unresponsive, This was Discussed Previously**

The Examiner is wrong for several reasons.

First, the equation was numbered after amendment as Equation 1.

Second, the Examiner has been unresponsive to Applicant's arguments even though they were fully discussed in significant detail in the previous Communication from the Applicant to the Examiner.

For example, in said Communication, the Applicant took the time to respond to the Examiner and wrote the following comments.

**73... the Examiner is incorrect because the specification states, "The equation of motion is ... where k is the first order spring constant characterizing the cathode, and b is the parameter relating frictional force exerted by the solution upon the cathode to the velocity of said cathode. By Stokes' law, the parameter "b" is closely related both to the viscosity of the solution in the reactor and the size of the cathode perpendicular to the velocity of said cathode ("A"). The solution to the equation of motion is that of a damped sinusoid, with a natural angular frequency of a damped oscillator."**

In differential calculus and elementary mechanics, these constants are well known... The Examiner is also referred to "Advanced Calculus for Applications, Second Edition" by Francis Hildebrand (1976). On pages 72 through 76, and also page 88, in the section entitled "Applications to Linear Differential Equations with Constant Coefficients", there is discussed these equations. In addition, the Examiner is referred to "Theoretical Mechanics: An Introduction To Mathematical Physics" (1929) by Joseph Ames and Francis Murnaghan. The examiner is specifically referred to pages 24 pages 124 to 139 for background on these equations. In addition the Examiner is referred to "Analytical Mechanics" (1962) by Grant Fowles for the physics resulting from restoring force. The examiner is referred to "Calculus and Analytical Geometry" (1951, and 1960) by George Thomas Jr., including pages 895 through 900 for more background on a matter that was not a problem for the previous Examiner or the Declarants."

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. The Examiner discuss Applicant's arguments, nor did the Examiner rebut Applicant's arguments. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. The Applicant requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response.

Furthermore, there is no basis for the Examiner's uncalled for, and mean, comments. There is no need to solve for every constant in every equation in a teaching, especially because these were presented to demonstrate the physics and mathematics to make the invention and beyond, and the Examiner knows that. Instead, the Examiner again leads away from the invention, even though the original specification has been demonstrated by the affiants to teach operability.

Nonetheless, to further respond and hopefully please the examiner, the Applicant does now submit an amendment, which if the Examiner will enter, will satisfy the Examiner's comment.

16. The Examiner states,

*"There is neither an adequate description nor enabling disclosure of the parameters of a specific operative embodiment of the invention, including ... pressure and temperature conditions inside the reaction cell and how these conditions are maintained within a given range, ... (Applicant's arguments in his traverse have been fully considered but found unconvincing. Applicant has not incorporated by reference the applications that allegedly contain the above subject matter)."*

#### **THE TRUTH - The Examiner Has Been Substantively Unresponsive, This was Discussed Previously**

The Examiner is wrong for several reasons. First, the Examiner has been unresponsive to Applicant's arguments even though they were fully discussed in significant detail in the previous Communication from the Applicant to the Examiner. For example, in said Communication, the Applicant took the time to respond to the Examiner and wrote the following comment.

"... the Applicant cited his other patent applications, consistent with *In re Jolles*. Reference to other patents is allowable. Applicant asks the Examiner to explain his deviation from *In re Jolles*.

"An original specification can also incorporate by reference subject matter disclosed in another patent application which is pending before the Patent Office and hence unavailable to the public." [*In re Jolles*; United States Court of Customs and Patent Appeals, 1980, 628 F.2d, 1322, 206 USPQ 885]

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. Therefore, the Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response. Specifically, the Applicant hereby requests to know the scientific basis, or any basis which allows the Examiner to dismiss the Argument that,

**"An original specification can also incorporate by reference subject matter disclosed in another patent application which is pending before the Patent Office and hence unavailable to the public. "[In re Jolles; United States Court of Customs and Patent Appeals, 1980, 628 F.2d, 1322, 206 USPQ 885]".**

Second, the Examiner has not explained why these purported conditions must be maintained at the Examiner explicitly demands or claims. The Applicant presented the invention and it stands as written.

Third, despite the Examiner's comments, the present invention measures loading, and it does not matter what "*conditions exist inside the cell (e.g., pressure and temperature conditions)*" or "*how and in what manner these conditions are maintained, e.g., how the temperature is maintained at a given range.*"

Fourth, the Examiner again is leading away from the present invention for reasons unclear.

17. The Examiner states,  
*"There is neither an adequate description nor enabling disclosure of the parameters of a specific operative embodiment of the invention, including ... dimensional ratio of electrodes to their spacing (i.e., sizes of anode and cathode relative to the space between them), .. (Applicant's arguments in his traverse have been fully considered but found unconvincing. Applicant has not incorporated by reference the applications that allegedly contain the above subject matter)."*

#### **THE TRUTH - The Examiner Has Been Substantively Unresponsive, This was Discussed Previously**

This is unfair for several reasons. First, the Examiner has been unresponsive to Applicant's arguments even though they were fully discussed in significant detail in the previous Communication from the Applicant to the Examiner. For example, in said Communication, the Applicant took the time to respond to the Examiner and

wrote the following comments and questions, because the very question does not make sense. The Applicant said,

**"What is the "*dimensional ratio of electrodes*"? What are the units of an "electrodes"? Could the Examiner mean the "size" of the electrode? Or does he mean weight? or does he mean Reynolds number? The Examiner is harassing the Applicant because the Examiner's comment has nothing to do with the present invention, a method of monitoring vibrational normal modes (i.e.. frequencies) of an electrode.**

[from Applicant's previous Communication to the Examiner]

Second, attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. Attention is now also directed to the fact that the questions in Applicant's Communication have also been ignored by the Examiner. The Examiner did not answer Applicant's scientific argument. Therefore it is impossible to tell how the Examiner weighed Applicant's scientific argument; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. Therefore, given the above, the Applicant hereby requests to know the scientific basis, or any basis which allows the Examiner to dismiss the Argument that,

**"What is the "*dimensional ratio of electrodes*"? What are the units of an "electrodes"? Could the Examiner mean the "size" of the electrode? Or does he mean weight? or does he mean Reynolds number?"**

Importantly, nonetheless, to further respond and hopefully please the examiner, the Applicant does now submit an amendment, which if the Examiner will enter, will satisfy the Examiner's comment.

18. The Examiner states,

*"There is neither an adequate description nor enabling disclosure of the parameters of a specific operative embodiment of the invention, including ... surface area-to-volume requirement for the reactor... (Applicant's arguments in his traverse have been fully considered but found unconvincing. Applicant has not incorporated by reference the applications that allegedly contain the above subject matter)."*

#### **THE TRUTH - The Examiner Has Been Substantively Unresponsive, This was Discussed Previously**

The Examiner has been unresponsive to Applicant's arguments even though they were fully discussed in significant detail in the previous Communication from the Applicant to the Examiner. For example, in said Communication, the Applicant took the time to respond to the Examiner and wrote the following comments and questions.

**"What is the "surface area-to-volume requirement for the reactor" in this context and exactly what does it have to do with a method of monitoring vibrational normal modes (i.e.. frequencies) of an electrode? Nothing. The Examiner's comment again has nothing to do with the present invention, a method of monitoring vibrational normal modes (i.e.. frequencies) of an electrode. The Examiner is harassing the Applicant for reasons unclear.**

[from Applicant's previous Communication to the Examiner]

Attention is directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. Attention is now also directed to the fact that the questions in Applicant's Communication have also been ignored by the Examiner. The Examiner did not cite Applicant's scientific argument. Therefore it is impossible to tell how the Examiner weighed Applicant's scientific argument; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. Therefore, given the above, the Applicant hereby requests to know the scientific basis, or any basis which allows the Examiner to dismiss the Argument that,

**"What is the "surface area-to-volume requirement for the reactor" in this context and exactly what does it have to do with a method of monitoring vibrational normal modes (i.e.. frequencies) of an electrode?"**

Nonetheless, to further respond and hopefully please the examiner, the Applicant does now submit an amendment, which if the Examiner will enter, will satisfy the Examiner's request.

19. The Examiner states,  
*"The disclosure is also insufficient as to ratio of the different masses involved, i.e., ratio of the thickness of "springy material" 13 to the thickness of cathode 1, ratio of mass 11 to the mass of cathode 1, ratio of three masses to each other, etc. (Applicant's reply is unresponsive. The above remark refers to lack of disclosure of parameters for an operating embodiment, which embodiment has not been proven to exist by the applicant).*  
*"There is neither an adequate description nor enabling disclosure of the parameters of a specific operative embodiment of the invention, including ... thickness ratio of the "springy material" 3 to cathode 1 .(Applicants arguments in his traverse have been fully considered but found unconvincing. Applicant has not incorporated by reference the applications that allegedly contain the above subject matter)."*  
*"There is neither an adequate description nor enabling disclosure of the parameters of a specific operative embodiment of the invention, including ... ratio of masses 1, 11 and 13 to each other ... (Applicants arguments in his traverse have been fully considered but found unconvincing. Applicant has not*

*incorporated by reference the applications that allegedly contain the above subject matter).*"

### **THE TRUTH - The Examiner Has Been Substantively Unresponsive, This was Discussed Previously**

This is unfair and untrue for several reasons. First, the English does not even make sense. Second, the Examiner has been unresponsive to Applicant's arguments even though they were fully discussed in significant detail in the previous Communication from the Applicant to the Examiner. For example, in said Communication, the Applicant took the time to respond to the Examiner and referred the Examiner to "Advanced Calculus for Applications, Second Edition" by Francis Hildebrand (1976), "Theoretical Mechanics: An Introduction To Mathematical Physics" (1929), "Analytical Mechanics" (1962), and "Calculus and Analytical Geometry" (1951, and 1960). Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. Attention is now also directed to the fact that the questions in Applicant's Communication have also been ignored by the Examiner. The Commissioner, and Court, should note that the Examiner did not cite Applicant's arguments, nor did the Examiner discuss Applicant's arguments, nor did the Examiner rebut Applicant's arguments. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals.

As a corollary, the Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response. Specifically, the Applicant hereby requests to know the scientific basis, or any basis which allows the Examiner to dismiss the Argument that,

**"What is the "*thickness ratio of the "springy material" 13 to cathode 1*" ? and what does it have to do with a vibrational normal modes as discussed in the present application? Nothing. The Examiner is harassing the Applicant, or is again insisting on inserting his own inventions or ideas onto the Applicant for reasons unclear. The Examiner is referred to "Advanced Calculus for Applications, Second Edition" by Francis Hildebrand (1976), "Theoretical Mechanics: An Introduction To Mathematical Physics" (1929), "Analytical Mechanics" (1962), and "Calculus and Analytical Geometry" (1951, and 1960)."}**

NOTA BENE: Nonetheless, because this is important, and to further respond and hopefully please the examiner, the Applicant does now submit an amendment, which if the Examiner will enter, will satisfy the Examiner's request. All ratios are given, or are derivable, from the preferred embodiment.

20. The Examiner states,

*"There is neither an adequate description nor enabling disclosure of the parameters of a specific operative embodiment of the invention, including ... length of time the process has to carried out ... (Applicants arguments in his traverse have been fully considered but found unconvincing. Applicant has not incorporated by reference the applications that allegedly contain the above subject matter)."*

This is unfair for many reasons. First, the Examiner has been unresponsive to Applicant's arguments even though they were fully discussed in significant detail in the previous Communication from the Applicant to the Examiner. For example, in said Communication, the Applicant took the time to respond to the Examiner and wrote the following comment.

**"THE TRUTH - Nonscientific Requirement By Examiner**

If the Examiner wants to know the "... *length of time the process has to carried out*", he reveals that he does know how a measurement device, or even a thermometer works after equilibrium. Once loading is achieved, the measurement can be made. What does the "*length of time the process has to (sic) carried out*" have to do with a vibrational normal mode measurement of loading? Nothing. The Examiner is patently harassing the Applicant."

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said comment in Applicant's Communication have simply been ignored by the Examiner. Attention is now also directed to the fact that the question in Applicant's Communication have also been ignored by the Examiner. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response. Specifically, the Applicant hereby requests to know the scientific basis, or any basis which allows the Examiner to dismiss the Argument that, "What does the "*length of time the process has to (sic) carried out*" have to do with a vibrational normal mode measurement of loading? Nothing. The Examiner is patently harassing the Applicant by use of a word processor.

Nonetheless, to further respond and hopefully please the examiner, the Applicant does now submit an amendment, which if the Examiner will enter, will satisfy the Examiner's request.

21. The Examiner states,

*"The applicant states on page 4 of the specification that the process of loading is complicated, and the changes of deuterium loading into palladium is difficult because "the rate of desired reactions is very low." However, the applicant presents neither working examples nor description of an operating embodiment nor specific direction or guidance as to how to achieve the claimed results. Thus, although the applicant acknowledges that the process is complicated and difficult to monitor, he treats the process as though it is well known and readily reproducible. This paucity of information necessary for the exercise of the claimed invention is discussed in detail below."*

This is harassment for several reasons. First, this is a new argument after final.

Second, it is irrelevant that the rate of desired reactions is low. THIS INVENTION MEASURES THE LOADING.

Third, the Examiner's argument is a straw argument which is both self-serving and far from the standards of science. If an invention measured the speed of a car or other object, would it necessarily matter what the velocity of the car was? In many types of speedometers it would not.

Fourth, this was discussed, as the Examiner has ignored,

**"... it is wrong to purport "loading" is the same as "nuclear" anything.** However, it is especially important to note that loading is a *sine qua non* for the desired reactions, and that there has been insufficient mention of loading achieved in many of the so-called "negative results" studies upon which the Examiner relies. The proper loading required must usually be in excess of the values mentioned in Examiner's art [and not even mentioned in the majority of the papers which were cited by the Examiner]. Many "negative" results may be, in part, due to inadequate loading, and/or the failure to monitor said loading of isotopic fuel as shown in Figure 1 from the Applicant's peer-reviewed published paper, "Patterns of Failure..." (Swartz 98B)."

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said comment in Applicant's Communication have simply been ignored by the Examiner. Attention is now also directed to the fact that the question in Applicant's Communication have also been ignored by the Examiner. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response.

22. The Examiner states,

*"As presently set forth, the electrical power system (box 50 in Fig. 1), the optical irradiator subsystem (box 30 in Fig. 1), the optical detection subsystem (box 31 in Fig. 1), the central control unit (box 23 in Fig. 1) and the power source (box 42 in Fig. 1) are essentially "black boxes" with no description of the internals thereof. Applicant has not shown where the specifics of the internals of the "black boxes" are described in the cited publications."*

### THE TRUTH - The Examiner Has Been Substantively Unresponsive, This was Discussed Previously

The Examiner has been unresponsive to Applicant's arguments even though they were fully discussed in significant detail in the previous Communication from the Applicant to the Examiner. For example, in said Communication, the Applicant took the time to respond to the Examiner and wrote the following comment.

**"The original specification was clear and sufficient for the affiants, and the previous Examiner Wasil, and the court. As the specification states,**

**"The optical beam originates from an optical laser contained in an optical irradiator subsystem (labeled as number 30) and is detected electrooptically by an optical detection subsystem (labeled as number 31). The photodetector and associated equipment are not shown in this figure. The repetitive cutoff of the optical beam occurs due to the physical displacement of the cathode during an oscillation as described herein. These oscillations may occur during the loading of said cathode, or may occur periodically. The mass of the cathode (increasing by adsorption of deuterons) increases antecedent to the desired reactions, and results in a decreasing of the frequency of said oscillation (vide infra). The mass is derived from the decrease in oscillation frequency."**

[from Applicant's previous Communication to the Examiner]

In fact, as the present Application states, and was discussed in the previous Communication to the Examiner which was ignored,

**"Figure 1 is a simplified three-dimensional diagram of the reaction monitoring system, showing an electrochemically loading system ("reaction system") containing the vibrating cathode, and accompanied by the optical monitoring system and the orthogonal magnetic pumping coil.**

**Within the reaction chamber (labeled as number 16) is the platinum anode (labeled a number 60), and the palladium cathode (labeled as number 1). These electrodes are driven by an external electrical power system (labeled as number 50).**

**The cathode (labeled as number 1) has a variety of positions of which three are shown. These displacements are greatly magnified in Figure 1. For simplicity the reactor (16) is filled to the top. ... When this novel cathode does move, it interferes with an optical beam (labeled as number 12 in Figure 1)."**

**Thus, the original specification teaches (page 4, line 32 through page 5, line 3), the best mode contemplated by the inventor of carrying out his invention using an optical subsystem (referring to the figures).**

"The optical beam originates from an optical laser contained in an optical irradiator subsystem (labeled as number 30) and is detected electrooptically by a optical detection subsystem (labeled as number 31)."

The original specification teaches (page 5, lines 5-8) and elaborates for those skilled in the art to make and use the subject matter defined by each of the rejected claims.

"The repetitive cut-off of the optical beam occurs due to the physical displacement of the cathode during an oscillation as described herein. These oscillations may occur during the loading of said cathode, or may occur periodically."

The original specification (page 5, lines 8-12), continues with the teaching of how the vibrational frequency relates to the loading.

"The mass of the fusion cathode (increasing by adsorption of deuterons) increases antecedent to nuclear fusion, and results in a decreasing of the frequency of said oscillation (vide infra). The mass is derived from the decrease in oscillation frequency.

The original specification teaches (page 5, lines 13-18), the best mode contemplated by the inventor of carrying out his invention using detected vibration of the loaded electrode (referring to the figures).

"The frequency information is collected, and all the subunits are driven, by a central control unit (labeled as number 23). Said control unit also powers the means to drive said vibrational frequency, consisting of a power source (labeled as number 42) and a coil (labeled as number 41, of which only a few turns are shown in Figure 1) .... "

"Because the natural frequency can be counted with a laser beam and photodetector (coupled to a trigger and frequency counter), an accurate in situ determination of frequency is possible."

The original specification continues (page 5, lines 23-25) with the teaching of the determination.

"The cathode can be modeled as a pendulum, and any analysis is simplified by considering that most of the mass resides in the large terminal portion of said cathode (labeled as number 1). The analysis can be derived from Newton's Law, from the viscous damping force, and the approximation that the cathode behaves similar to a basic mass/spring-type system."

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. The Commissioner, and Court, should note that the Examiner did not cite Applicant's arguments, nor did the Examiner discuss Applicant's arguments, nor did the Examiner rebut Applicant's arguments. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. Because the Examiner was requested to answer and respond with specificity, the Examiner has apparently ignored the Office rules, and expectations of reasonable people, and has defied the laws and regulations arising from the US Constitution which led to the creation of the Patent

Office. The Applicant hereby requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response.

Nonetheless, to further respond and hopefully please the examiner, the Applicant does now submit an amendment, which if the Examiner will enter, will satisfy the Examiner's request.

23. The Examiner states,

*"There is neither an adequate description nor enabling disclosure of the parameters of a specific operative embodiment of the invention, including ... required magnetic strength of coil 41, distance between the coil and the coil ... (Applicant's arguments in his traverse have been fully considered but found unconvincing. Applicant has not incorporated by reference the applications that allegedly contain the above subject matter)."*

**THE TRUTH - The Examiner Has Been Substantively Unresponsive, This was Discussed Previously**

The Examiner has been unresponsive to Applicant's arguments even though they were fully discussed in significant detail in the previous Communication from the Applicant to the Examiner. For example, in said Communication, the Applicant took the time to respond to the Examiner and wrote the following comment which are well known to those skill in the art,

**"This is well known to those skilled-in-the-art as the Declarants indicate. The Examiner is referred to the literature such as "The Physical Principles of Magnetism", Allan H. Morrish, John Wiley and Sons, New York, 1966, and the Amateur Radio Handbook, which will explain this further for the Examiner.**

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals.

Nonetheless, to further respond and hopefully please the examiner, the Applicant does now submit an amendment, which if the Examiner will enter, will satisfy the Examiner's request.

24. Ignored in the Examiner's Communication are the following standards of review which have been cited by the Applicant. The Applicant explicitly requested answers with specificity regarding each of the Office's systematic deviations. There has been no substantive response. Ignored by the Examiner is the following argument by the Applicant citing *In re Hogan*,

**"The Examiner ignores *In re Hogan* [559 F.2d 595, 60S, 194 USPQ 527, 537 (CCPA 1977)] which discusses that enablement must be judged on the original specification and claims, but in the Office Communication it was not.**

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. The Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response.

25. Also ignored by the Examiner is the following argument by the Applicant citing following argument by the Applicant citing *In re Fouche*,

**"The Examiner ignores *In re Fouche* [439 F.2d 1237, 1243, 169 USPQ 429, 434, (CCPA 1971) and *In re Zletz* [893 F.2d 319, 13 USPQ2d 1320 (Fed. Cir. 1989)] which state that an invention (in structure, operation and composition) is defined by the claims and the original specification.**

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. The Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response.

26. Also ignored by the Examiner is the following argument by the Applicant citing In re Morris,

**"The Examiner ignores In re Morris which requires that the Examiner must respond to what Applicant meant, but he did not.**

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. The Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response.

27. Also ignored by the Examiner is the following argument by the Applicant citing In re Prater,

**"The Examiner ignores In re Prater, 415 F.2d 1393, 162 USPQ 541 (CCPA 1969)] which requires the Examiner to refer to the claimed invention as the focus of its Office communication, but it did not when drifting toward criticism of "FP".**

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. The Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response.

28. Also ignored by the Examiner is the following argument by the Applicant citing Rule 132,

**"The Examiner ignores Rule 132 which requires Applicant's solid, substantial, and timely, evidence submitted against the Examiner's rejections be considered because "(p)atentability is determined on the totality of the record, by a preponderance of the evidence with due consideration to persuasiveness of argument." [Id. at 1445, 24 USPQ2d at 1444]. Applicant has published his inventions, proving that this invention was correctly taught in the original specification and claims, on the filing date of the application.**

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. The Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response.

29. Also ignored by the Examiner is the following argument by the Applicant citing In re Gazave,

**"The Examiner ignores In re Gazave, 54 CCPA 1524, 379 F.2d 973, 154 USPQ 92 (1967) and In re Chilowsky [43 CCPA 775, 229 F.2d 457, 108 USPQ 321 (1956)] which require consideration of the material which Applicant supplied and cited - and now has supplied again.**

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. The Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response.

30. Also ignored by the Examiner is the following argument by the Applicant citing *In re Brana* and *In re Eltgroth*,

**"The Examiner ignores *In re Brana* and *In re Eltgroth*, 419 F.2d 918, 164 USPQ 221 (CCPA 1970) which demand that the Examiner must establish a reason to doubt an invention's asserted utility, and the method to reveal information about the loading, *in situ*, and non-invasively using a vibrating electrode, composed of a metal such as palladium which has internal filling ("loading") with hydrogen, which is monitored for its natural frequency, as was presented in the original specification and claims has great utility. It is not 'incredible' or 'unbelievable' like the Examiner appears to purport. This invention is quite believable.**

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. The Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response.

31. Also ignored by the Examiner is the following argument by the Applicant submitted evidence including Declarations and published peer-reviewed scientific articles ,

**"108. In summary, Examiner must consider the submitted evidence including:**

**#1) Declarations from scientists of ordinary skill-in-the-art, who considered the specification and stated that the written description was sufficient.**

**#2) The published peer-reviewed scientific articles [including m Swartz, M., "Possible Deuterium Production From Light water excess enthalpy experiments using Nickel Cathodes", *Journal of New Energy*, 3, 68-80 (1996) and Swartz, 1998, Improved Electrolytic Reactor Performance Using p-Notch System Operation and Gold Anodes, *Transactions of the American Nuclear Association*, Nashville, Tenn 1998 Meeting, (ISSN:0003-018X publisher LaGrange, Ill) 78, 84-85 and Swartz(92, 94A, 97A, 97C)].**

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. The Applicant hereby again requests to know the

substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response.

32. Also ignored by the Examiner is the following argument by the Applicant citing In re Wands,

**"The Examiner ignores In re Wands, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988) which indicates that #1 or #2 are sufficient to demonstrate that the specification provides an adequately written description of the subject matter, including how to operate the invention, and claimed the invention so that an artisan, or those skilled-in-the-art, could practice it without undue experimentation. Either #1 or #2 prove that enablement, utility, and validation. Together, #1 and #2 have been submitted and Applicant submits that these together corroborate enablement of the present invention both *de facto* and *de jure*.**

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. The Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response.

33. Also ignored by the Examiner is the following argument by the Applicant citing In re Vaeck,

**"The Examiner ignores In re Vaeck [947 F.2d 488, 495-96, 10 USPQ2d 1438, 1444 (Fed. Cir. 1991)] which states that an enablement rejection under section 112, ¶1 is only appropriate where the written description fails to teach those skilled-in-the-art, like the Declarants, to make and use the invention.**

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. The Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response.

34. Also ignored by the Examiner is the following argument by the Applicant citing Clause 8 of Section 8, Article I,

**"The Examiner has ignored controlling authorities including Clause 8 of Section 8, Article I, by improperly eliminating an entire field involving energy and United States security.**

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. The Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response.

35. Also ignored by the Examiner is the following argument by the Applicant citing Article VI,

**"The Examiner has ignored controlling authorities including Article VI, by interfering with laws passed by Congress [DIAMOND v. CHAKRABARTY; 447 U.S. 303, 309] including that patentable statutory subject matter spans "anything under the sun that is made by man" [S. Rep. No. 1979, 82d Cong., 2d Sess., 5 (1952); H. R. Rep. No. 1923, 82d Cong., 2d Sess., 6 (1952)].**

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. The Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response.

36. Also ignored by the Examiner is the following argument by the Applicant citing Article I, Section 2,

**"The Examiner has ignored controlling authorities including Article I, Section 2, by ignoring that Applicant is entitled to the privileges and immunities of citizens in the other states. Specifically, the Examiner ignores that the Office, Europe and Japan have allowed selected other patents in the very same field not allowed here [Czirr(5,231,290), Westphal(5,215,631), Ahern(5,411,654), Patterson(5,036,031), (5,318,675), (5,372,688), (5,036,031); Aspden, UK-GB 2,231,195B]. This is a dual-tiered system which the Office has set up to usurp constitution rights of the Applicant and American citizens.**

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. The Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response.

37. Also ignored by the Examiner is the following argument by the Applicant citing Supreme Court in United States v. Nixon (1974),

**"110. The Examiner continues to have two different standards of review. Therefore, the Examiner has ignored controlling authorities including the reasoning of the Supreme Court in United States v. Nixon (1974) that all are "equal under the law". Hence, the Examiner has ignored controlling authorities including the 14th Amendment, requiring an impartial tribunal [28 U.S. Code Section 144, Mayberry v. Penna., 91 S.8.; Bloom v. Illinois, 88 Ct. 499 S.Ct. 1477; Duncan v. Louisiana, 88 S.Ct.1444] and equal protection. In the light of the previously unrebutted Declarations [hereby again submitted] there appear to be violations of the 14th Amendment's "equal protection" clause [Frontiero v. Richardson, 93 S.Ct. 1736, 411 U.S. 677; Weiss v. Weiss, 436 N.Y.S. 2d. 862, 52 N.Y. 2d. 170 (1981)] with serious implications [Gass v. Lopez, 95 S. Ct 729; Wood v. Strickland, 95 S Ct 9S2: U.S. v. Price, 86 S Ct 1152, 1157, Footnote 7; Griffin v. Breckenridge, 91 S Ct 179D; Gamez v. Toledo, 42 U.S.C. §1983, and Bivens v. Six Unknown Named Agents of Fed. Bureau of Narcotics]."**

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. The Applicant hereby again requests to know the

substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response.

38. It is commonsense that the individuals in the scientific community who actually attend the Conferences in cold fusion are the same ones who evaluate its products and publications. This community as defined by the rules of the Office and by commonsense -- if it will be applied in this case -- verify the existence of the field. Publications show that growing numbers of the scientific community consider the positive results of cold fusion as being confirmed. Where is the Examiner's comment on the hundreds of submitted publications proving that the Office is very wrong. Said publications continue to this day, including (and each of which show the Office's opinion is flawed):

Arapi, Alban, Faculty Of Engineering, Iwate University, Japan, Experimental Observation Of New Element Production In The Deuteride And/Or Hydride Palladium Electrodes Exposed To The Low Energy Dc Glow-Discharge, Cold Fusion Times, Volume 10, Number 1, 2003

Arata, Achievement Of Solid-State Plasma Fusion, Cold Fusion Times Fall 1997

Asami, T. Senjuh, T. Uehara, M. Sumi, H. Kamimura, S. Miyashita And K. Matsui R&D Center For New Hydrogen Energy, The Institute Of Applied Energy 14-2, Nishishinbashi 1-Chome, Minato-Ku, Tokyo 105, Japan, Material Behavior Of Highly Deuterated Palladium, The Seventh International Conference On Cold Fusion. 1998

Bass, Robert W., Wm. Stan Gleeson, Bass & Gleeson, Theoretical And Experimental Results, Trans. American Nuclear Society, Low-Energy Nuclear Reactions (2000)

Beaudette, Charles G. Excess Heat & Why Cold Fusion Research Prevailed, Second Edition, 2002, Oak Grove Press, Llc, Isbn 9-9678548-2-2

Biberian, Jean-Paul Georges Lonchampt, Lucien Bonnetain And Jean Delepine Equipe Mixte De Recherche, Enseeg-Inpg, Bp 75, 38402 Saint Martin D'heres, France Electrolysis Of Laalo<sub>3</sub> Single Crystals And Ceramics In A Deuteriated Atmosphere, The Seventh International Conference On Cold Fusion. 1998

Biberian, Jean-Paul, Georges Lonchampt, Deuterium Gas Loading Of Palladium Using A Solid State Electrolyte, The Ninth International Conference On Cold Fusion. 2002

Biberian, Jean Paul, Rapport Sur L'International Conference On Cold Fusion Iccf9 Pékin, Chine 2002

Bockris, J. O™, Accountability And Academic Freedom, The Battle Concerning Research On Cold Fusion At Texas A&M University, Accountability In Research, 2000. 8: P. 103

Cain, Bruce L. Mississippi State Univ, Carbonate Precipitates During Heat Evolution In Fp-Type Cells, Trans. American Nuclear Society, Low-Energy Nuclear Reactions (2000)

- Celani Et Al, High Hydrogen Loading Into Thin Palladium Wires Through Precipitate Of Alkaline-Earth Carbonate On The Surface Of Cathode: Evidence Of New Phases In The Pd-H System And Unexpected Problems Due To Bacteria Contamination In The Heavy Water, International Conference On Cold Fusion 8 (Iccf8) May 21–26, 2000
- Celani, F., A. Spallone, P. Tripodi, A. Petrocchi, D. Di Gioacchino, M. Boutet, P. Marini, V. Di Stefano, M. Diociaiuti, W. Collis Reproducible D/Pd Ratio >1 And Excess Heat Correlation By 1- $\mu$ S Pulse, High-Current Electrolysis, Fusion Technology 29, 398-404, (1996)
- Cellucci, F., Et Al. X-Ray, Heat Excess And 4He In The Electrochemical Confinement Of Deuterium In Palladium. Sixth International Conference On Cold Fusion, Progress In New Hydrogen Energy. 1996. Lake Toya, Hokkaido, Japan
- Chubb, Scott R. And Talbot A. Chubb, Theoretical Framework For Anomalous Heat And 4He From Low Energy Nuclear Reactions In Transition Metal Systems, Cold Fusion Times, Volume 10, Number 1, 2003 [Issn # 1072-2874]
- Chubb, Scott R. Talbot A. Chubb, Rsch Syst, Theoretical Framework For Anomalous Heat Without High-Energy Particles From Deuteron Fusion In Deuterium-Transition Metal Systems, Trans. American Nuclear Society, Low-Energy Nuclear Reactions (2000)
- Claytor, T. N. ,M. J. Schwab, D. J. Thoma, D. F. Teter And D. G. Tuggle, Tritium Production From Palladium Alloys, The Seventh International Conference On Cold Fusion. 1998. Vancouver, Canada:, Eneco, Inc., Salt Lake City, Ut. : P. 88.
- Dash, J. R. Kopecek, And S. Miguet, Excess Heat And Unexpected Elements From Aqueous Electrolysis With Titanium And Palladium Cathodes, Proceedings Of The 32 Nd Intersociety Energy Conversion Engineering Conference, Vol. 2, Pp. 1350-1355 (1997).
- Dufour, J. ,D. Murat, X. Dufour, J. Foos, Cnam, France, Experimental Observation Of Nuclear Reactions In Palladium And Uranium, Trans. American Nuclear Society, Low-Energy Nuclear Reactions (2000)
- Celani et alia, The Effect of g-b Phase On H(D)/Pd Overloading, Iccf7, Vancouver, Canada, 1998
- Fisher, John C. Polyneutron Chain Reactions, Trans. American Nuclear Society, Low-Energy Nuclear Reactions (2000)
- Goddard, G. J. Dash, Portland State Univ, , S. Frantz, Reed College Reactor, Characterization Of Uranium Codeposited With Hydrogen On Nickel Cathodes, Trans. American Nuclear Society, Low-Energy Nuclear Reactions (2000)
- Hagelstein, P. L. Mit, Theory For Anomalies In Metal Deuterides, Trans. American Nuclear Society, Low-Energy Nuclear Reactions (2000)
- Hagelstein, Mit, Anomalies In Metal Deuterides, Cold Fusion Times, Volume 10, Number 1, 2003 [Issn # 1072-2874]

Iwamura, Yasuhiro, Takehiko Itoh, Mitsuru Sakano And Satoshi Sakai, Observation Of Low Energy Nuclear Reactions Induced By D<sub>2</sub> Gas Permeation Through Pd Complexes, The Ninth International Conference On Cold Fusion. 2002. Beijing, China: Tsinghua University.

Iwamura, Yasuhiro, Mitsuru Sakano And Takehiko Itoh, Advanced Technology Research Center, Mitsubishi Heavy Industries Ltd., 1-8-1, Sachiura, Kanazawa-Ku, Yokohama 236-8515, Japan, Elemental Analysis Of Pd Complexes: Effects Of D<sub>2</sub> Gas, Jpn. J. Appl. Phys. Vol. 41 (2002) Pp. 4642–4650, Part 1, No. 7A, July 2002

Iwamura, Takehiko Itoh, Nobuaki Gotoh, Mitsuru Sakano, Ichiro Toyoda And Hiroshi Sakata, Detection Of Anomalous Elements, X-Ray And Excess Heat Induced By Continuous Diffusion Of Deuterium Through Multi-Layer Cathode (Pd/CaO/Pd), The Seventh International Conference On Cold Fusion. 1998. Vancouver, Canada:, Eneco, Inc., Salt Lake City, Ut. : P. 167.

J. Kasagi, H. Yuki, T. Itoh, N. Kasajima, T. Ohtsuki And A. G. Lipson, Anomalously Enhanced D(D,P)T Reaction In Pd And Pdo Observed At Very Low Bombarding Energies, Seventh International Conference On Cold Fusion. 1998. Vancouver, Canada:, Eneco, Inc., Salt Lake City,

Jak C. Kelly, Sydney Univ, Australia, Low-Energy Nuclear Reactions Of Protons In Host Metals At Picometre Distance, Trans. American Nuclear Society, Low-Energy Nuclear Reactions (2000)

Keerey, Particle Physics Research Co, Steven Jones, Mark Scott, Brigham Young University, Evidence Of Neutron Emissions From Fusion At Low Temperatures, Cold Fusion Times, Volume 10, Number 1, 2003 [Issn # 1072-2874]

Kenny, J. R. Schultz, Bradley Univ, Hyper Gentle Fusion And Isotope Production, Trans. American Nuclear Society, Low-Energy Nuclear Reactions (2000)

Li, X. Z. J. Tian, M. Y. Mei, Tsinghua Univ, China, Resonant Tunneling In Low-Energy Nuclear Reactions, Trans. American Nuclear Society, Low-Energy Nuclear Reactions (2000)

Lonchampt, G., L. Bonnetain, And P. Hieter. Reproduction Of Fleischmann And Pons Experiments. In Sixth International Conference On Cold Fusion, Progress In New Hydrogen Energy. 1996. Lake Toya, Hokkaido, Japan

Lonchampt, Georges, Jean-Paul Siberian, Lucien Bonnetain, And Jean Delepine, Excess Heat Measurement With Pons And Fleischmann Type Cells, The Seventh International Conference On Cold Fusion. 1998. Vancouver, Canada:, Eneco, Inc., Salt Lake City, Ut. P. 202.

Mallove, Eugene F., Here Is The Preface And Prologue To The Book Fire From Ice: Searching For The Truth Behind The Cold Fusion Furor By A Reprint Of 1991 Edition, Matsumoto, Taka-Aki, Hokkaido Univ, Japan, Generating Carbon Tubes And Films From Lead And Cadmium Wires During Underwater Spark Discharges, Trans. American Nuclear Society, Low-Energy Nuclear Reactions (2000)

- Mckubre And F. L. Tanzella, Materials Issues Of Loading Deuterium Into Palladium And The Association With Excess Heat Production, The Seventh International Conference On Cold Fusion. 1998. Vancouver, Canada: Eneco, Inc., Salt Lake City, Ut. : P. 230.
- Mckubre, Michael Francis Tanzella, Paolo Tripodi, Sri Int, Evidence Of D-D Fusion Products In Experiments Conducted With Palladium At Near Ambient Temperatures, Trans. American Nuclear Society, Low-Energy Nuclear Reactions (2000)
- Mckubre, M.C.H., Et Al., Development Of Advanced Concepts For Nuclear Processes In Deuterated Metals, Electric Power Research Institute (Epri), 1994.
- Mckubre, Michael C. H., Closing Comments Summarizing The Status And Progress Of Experimental Studies, The Ninth International Conference On Cold Fusion. 2002. Beijing, China
- Mckubre, M.C.H., Et Al. The Emergence Of A Coherent Explanation For Anomalies Observed In D/Pd And H/Pd System: Evidence For 4He And 3He Production. 8Th International Conference On Cold Fusion. 2000. Lerici (La Spezia), Italy
- Melich, Hansen, Pd/D Calorimetry - The Key To The F/P Effect And A Challenge To Science, Transactions Of Fusiontechnology, Vol. 26, Number 4T, Part 2, December 1994: P. 355.
- Melich, Michael E., Wilford N. Hansen, Back To The Future The Fleischmann-Pons Effect (1994)
- Melvin H. Miles And Benjamin F. Bush, Calorimetric Principles And Problems In Pd-D2O Electrolysis, The Third International Conference On Cold Fusion. 1991. Nagoya, Japan: Universal Academy Press, Inc., Tokyo: P. 113.
- Miles, S. Szpak\*, P.A. Mosier-Boss\* And M. Fleischmann\*\*, Thermal Behavior Of Polarized Pd/D Electrodes Prepared By Co-Deposition, The Ninth International Conference On Cold Fusion. 2002. Beijing, China: Tsinghua University.
- Miles, Reply To Jones, Physical Chemistry B, 102, 3642
- Miles, Melvin H. Nawcud, , M. Ashraf Imam, Nrl, Martin Fleischmann, Enea, Frascati, Italy, Excess Heat And Helium Production In The Palladium-Boron System, Trans. American Nuclear Society, Low-Energy Nuclear Reactions (2000)
- Miles, M. B.F. Bush, Radiation Measurements At China Lake: Real Or Artifacts?, The Seventh International Conference On Cold Fusion. 1998. Vancouver, Canada: Eneco, Inc., Salt Lake City, Ut.
- Miles, M.H. . H.D. Arman, J.D. Carrick, C.K. Gren, K.A. Haggerty, H.Y. Kim, A.G. Ky, J.E. Markham, C.F. Meeks And D.E. Noga, The Elevation Of Boiling Points In H2O And D2O Electrolytes, The Ninth International Conference On Cold Fusion. 2002. Beijing, China: Tsinghua University.
- Miley, George H., Some Personal Reflections On Scientific Ethics And The Cold Fusion "Episode", Accountability In Research, 2000. 8: P. 121

- Miley, George H. Giovanna Selvaggi, Andy Tate, Carlos Castaño, Univ Of Illinois, Advances In Thin-Film Proton-Reaction Cell Experiments, Trans. American Nuclear Society, Low-Energy Nuclear Reactions (2000)
- Miley, G.H. On The Reaction Product And Heat Correlation For Lenrs, 8Th International Conference On Cold Fusion. 2000. Lerici (La Spezia), Italy: Italian Physical Society, Bologna, Italy.
- Miley, G.H., Et Al. Progress In Thin Film Lenr Research. In The Ninth International Conference On Cold Fusion.2002. Beijing, China
- Mizuno, Tadahiko, Tadayoshi Ohmori 1 , Kazuhisa Azumi, Tadashi Akimoto And Akito Takahashi, Confirmation Of Heat Generation And Anomalous Element Caused
- Mizuno, Tadahiko Tadayoshi Ohmori, Tadashi Akimoto, Hokkaido Univ, Japan, , Akito Takahashi, Osaka Univ, Japan, Neutronics, Heat And Products Induced By Plasma Electrolysis, Trans. American Nuclear Society, Low-Energy Nuclear Reactions (2000)
- Mizuno, Tadahiko, Experimental Confirmation Of The Nuclear Reaction At Low Energy Caused By Electrolysis In The Electrolyte, Proceedings For The Symposium On Advanced Research In Energy Technology 2000, Hokkaido University, March 15, 16 And 17, 2000, Pp. 95-106.
- Mizuno, Tadahiko, Nuclear Transmutation: The Reality Of Cold Fusion, Department Of Nuclear Engineering Hokkaido National University, Japan
- Mizuno, Tadahiko, Tadayoshi Ohmori, Tadashi Akimoto And Akito Takahashi, Production Of Heat During Plasma Electrolysis In Liquid, Jpn. J. Appl. Phys. Vol.39 (2000)
- Mizuno, Tadashi Akimoto, Tadayoshi Ohmori 1 , Akito Takahashi, Relation Between Neutron Evolution And Deuterium Permeation With A Palladium Electrode, The Ninth International Conference On Cold Fusion. 2002. Beijing, China: Tsinghua University.
- Oriani, R. A., J. C. Fisher, Generation Of Nuclear Tracks During Electrolysis, Jpn. J. Appl. Phys. Vol. 41 (2002) Pp. 6180–6183, Part1, No. 10, October 2002
- Oriani, R.A. Anomalous Heavy Atomic Masses Produced By Electrolysis. In The Seventh International Conference On Cold Fusion. 1998. Vancouver, Canada: Eneco, Inc., Salt Lake City, Ut.
- Oriani, Richard A. Univ Of Minnesota, John C. Fisher, Fisher, Anomalous Power Generation Produced By Stirring Water Solutions, Trans. American Nuclear Society, Low-Energy Nuclear Reactions (2000)
- Savvatimova, I. Reproducibility Of Experiments In Glow Discharge And Processes Accompanying Deuterium Ions Bombardment. In 8Th International Conference On Cold Fusion. 2000. Lerici (La Spezia), Italy: Italian Physical Society, Bologna, Italy.
- Schwinger, Julian, Transactions Of Fusion Technology, Vol. 26, Number 4T, Part 2, December 1994
- Sinha, K. P. P. L. Hagelstein, Mit, Electron Screening In Metal Deuterides, Trans. American Nuclear Society, Low-Energy Nuclear Reactions (2000)

- Storms, Edmund, Cold Fusion: An Objective Assessment
- Storms, Edmund, Relationship Between Open-Circuit-Voltage And Heat Production In A Pons-Fleischmann Cell, The Seventh International Conference On Cold Fusion. 1998 (Iccf-7). Vancouver, Canada, April 19-24 (1998), Eneco, Inc., Salt Lake City, Ut., P.356.
- Storms, Edmund, A Critical Evaluation Of The Pons-Fleischmann Effect (Part 1),Infinite Energy 6, #31 (2000) 10
- Storms, Edmund, The Nature Of The Nuclear-Active-Environment Required For Low Energy Nuclear Reactions, Preprint To Infinite Energy, July 2002
- Storms, Edmund, Excess Power Production From Platinum Cathodes Using The Pons-Fleischmann Effect
- Swartz, Mitchell R. Engineering To Control Noise, Loading, And Optimal Operating Points, Trans. American Nuclear Society, Low-Energy Nuclear Reactions (2000)
- Swartz, Mitchell Patterns Of Success, Infinite Energy (2002)
- Szpak, S., P.A. Mosier-Boss, On The Behavior Of The Cathodically Polarized Pd/D System: Search For Emanating Radiation
- Szpak, S., P.A. Mosier-Boss,1 And R.D. Boss, On The Behavior Of The Pd/D System: Evidence For Tritium Production
- Szpak, S. P. A. Mosier-Boss, Technical Report 1862, February 2002, Thermal And Nuclear Aspects Of The Pd/D20 System; Volume 1: A Decade Of Research At Navy Laboratories
- Takahashi, Akito Masayuki Ohta, Osaka Univ, Japan, , Tadahiko Mizuno, Hokkaido Univ, Japan, Radiation-Less Fission Products By Selective Channel Low-Energy Photofission, Trans. American Nuclear Society, Low-Energy Nuclear Reactions (2000)
- Violante, V. Enea, Frascati, Italy, , G. H. Miley, P. Tripodi, Univ Of Illinois, , D. Di Gio-Acchino ~Infn, Italy, , C. Sibilia, Univ Of Rome, Italy, Recent Results From Collaborative Research At Enea-Frascati On Reaction Phenomena In Solids, Trans. American Nuclear Society, Low-Energy Nuclear Reactions (2000)
- Will, Fritz G., Krystyna Cedzynska, Denton C. Linton, Tritium Generation In Palladium Cathodes With High Deuterium Loading, Transactions Of Fusion Technology, Vol. 26, Number 4T, Part 2, December 1994: P. 209.

Where is the Examiner's technical response? Are all the above people lying as the Examiner and Office purport? No. In fact, such widespread replications of cold fusion, and other developments in the field, have more evidentiary value then the few flawed "negative" reports cited by the Examiner. The facts dispute the erroneous rejection of all pending claims made by the Examiner pursuant to 35 U.S.C. 112, first paragraph, based upon the Examiner's incorrect -- and unfounded given the supplied Declarations -- opinion that the "environment" in which the above-entitled invention operates "does not exist". In contrast to the few "nay-sayers" the Office cites, and in contrast to the "older"

books, papers, and newspapers to which the Office refers in its new argument, stand the facts and the Declarations which demonstrate the existence of these reactions, and even their generation of nuclear fusion products (such as helium-4), and the operability of the present invention. The positive results, the Declarations, and the peer-reviewed published literature have much more evidentiary value than the few "negative" less credible -- recycled and older -- reports cited by the Examiner. Therefore, the subject matter sought to be patented as defined by Claims 1-20 (all pending claims) have operability, and resides in a field which does exist and have utility.

39. In summary, and most importantly, Examiner should have considered, and commented upon substantively, the submitted evidence including:

#1) Declarations from scientists of ordinary skill-in-the-art, who considered the specification and stated that the written description was sufficient. Applicant is acknowledged by those involved in the state-of-the-art (Lin 97, Fox 97, Fox 96A, Rothwell 96). Said evidence shows that the Office's position is in error.

#2) The published peer-reviewed scientific articles [including Swartz, 1998, Improved Electrolytic Reactor Performance Using p-Notch System Operation and Gold Anodes, Transactions of the American Nuclear Society, Nashville, Tenn 1998 Meeting, (ISSN:0003-018X publisher LaGrange, Ill) 78, 84-85 and "Possible Deuterium Production From Light water excess enthalpy experiments using Nickel Cathodes", *Journal of New Energy*, 3, 68-80 (1996)].

By ignoring such evidence consisting of Declarations, and peer-reviewed publications, the Examiner also ignores *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988) which indicates that #1 or #2 are sufficient to demonstrate that the specification provides an adequately written description of the subject matter, including how to operate the invention, and claimed the invention so that an artisan, or those skilled-in-the-art, could practice it without undue experimentation. Either #1 or #2 prove that enablement, utility, and validation. Together, #1 and #2 have been submitted and Applicant submits that these together corroborate enablement of the present invention both *de facto and de jure*. Therefore, in accordance with the foregoing arguments that Appellant has conformed with the requirements of sections 112 of the Patent Act, and reversal of the rejection of Claims 1-20 is respectfully requested, as required by the statute (35 USC 112).

## ADDITIONAL ARGUMENTS UNDER "DUAL REJECTION"

40. Although perhaps not stated as clearly, the Office has made a 35U.S.C. §112, ¶1 rejection for failure to teach how to use the invention and a section 101 rejection for lack of utility [per M.P.E.P. §706.03(a)]. Appellant contends that the dual rejection is wrong for several reasons. First, the dual rejection is wrong because "[t]he how to use prong of ¶112 incorporates as a matter of law the requirement of 35U.S.C. §101 that the specification disclose as a matter of fact a practical utility for the invention." [In re Ziegler, 992 F.2d 1197, 1200, 26 USPQ2d 1600, 1603 (Fed. Cir. 1993)]. The Office's opinion - that the written description fails to illuminate a credible utility - has only been made by not reading on the claims of this patent regarding a monitored vibrating electrode, and by either dismissing the Declarations as opinion or ignoring them altogether. The Declarations declare, those skilled-in-the-art have testified, and the published papers corroborate, that the rejection is wrong.

Second, Appellant contends that the Office cannot make this type of rejection, unless it has reason to doubt the objective truth of the statements contained in the written description [Brana, 51 F.3d at 1566, 34 USPQ2d at 1441 ("[T]he PTO has the initial burden of challenging a presumptively correct assertion of utility in the disclosure. Only after the PTO provides evidence showing that one of ordinary skill in the art would reasonably doubt the asserted utility does the burden shift to the applicant to provide rebuttal evidence sufficient to convince such a person of the invention's asserted utility."); In re Marzocchi, 439 F.2d 220, 223, 169 USPQ 367, 369 (CCPA 1971) ("[A] specification disclosure which contains a teaching of the manner and process of making and using the invention in terms which correspond in scope to those used in describing and defining the subject matter sought to be patented must be taken as in compliance with the enabling requirement of the first paragraph of §112 unless there is reason to doubt the objective truth of the statements contained therein which must be relied on for enabling support.").

In this case, given the submitted [and received] Declarations, reason never existed doubting the objective truth of the statements relied on for enabling support. Therefore no basis exists for a rejection under either section 112, ¶1 for lack of enablement as a result of "the specification's ... failure to disclose adequately to one ordinarily skilled-in-the-art 'how to use' the invention without undue experimentation," or section 101 for lack of utility "when there is a complete absence of data supporting the statements which set forth the desired results of the claimed invention." [Environtech Corp. v. Al George, Inc., 730 F.2d 753, 762, 221 USPQ 473, 480 (Fed. Cir. 1984); also In re Brana, 51 F.3d 1560, 1564 n.12, 34 USPQ2d 1436, 1439 n.12 (Fed. Cir. 1995)].

Third, the examiner and the Office have relied on other art and claims than those involving the present application. The PTO may establish a reason to doubt an invention's asserted utility only when the written description "suggest[s] an inherently unbelievable undertaking or involve[s] implausible scientific principles." Brana, 51 F.3d at 1566, 34 USPQ2d at 1441; see also In re Eltgroth, 419 F.2d 918, 164 USPQ 221 (CCPA 1970)). Here, the Applicant -in addition to Declarations- has supplied and cited over 300 papers, over 30 of his own peer-reviewed papers (several published by the American Nuclear Society), and other art and Declarations demonstrating the PTO is wrong in their opinion.

Fourth, the subject has drawn a reaction historically similar to treating baldness which was once considered by the Office to also to be an inherently unbelievable undertaking. See In re Ferens, 417 F.2d 1072, 1074, 163 USPQ 609, 611 (CCPA 1969); In re Oberwener, 115 F.2d 826, 829, 47 USPQ 455, 458 (CCPA 1940). Since then, treatments for baldness have gained acceptance with minoxidil and other materials now recognized as effective in treating baldness. The Office must eventually admit that, as in baldness control, the field discussed by the Office where the present invention can be used, does exist. Furthermore, corroborating that fact, the PTO has granted patents in this field, just as they are granted around the world.

41. The Examiner purports that Claims 1-20 are rejected under 35 U.S.C. 112, first paragraph because the claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art ... to make and/or use the Invention. This is not true. As proven above, the Applicant taught the subject matter defined by each of the rejected Claims including how his apparatus and method works, set forth the best mode contemplated, distinctly pointed out and claimed the subject matter which constitutes the invention, wrote an adequate enabling disclosure, and thus complied and conformed with 35U.S.C. §112, first paragraph, of the Patent Act. Therefore, in accordance with the foregoing arguments that Applicant has conformed with the requirements of sections 112 of the Patent Act, and reversal of the rejection of the Claims 1-20, and allowance of Claims 1-20 is respectfully requested, as required by the statute (35 USC 112).

**ARGUMENT - U.S.C.112 REJECTION, Second Paragraph  
PURPORTED INDEFINITESS**

42. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1, 8 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being vague, indefinite and incomplete as to what the material is coupled to. Claims 1 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being vague and indefinite as to what is meant by the term, "to follow.

For each rejection under 35 U.S.C. 112, second paragraph, the Appellant hereby does fully and completely specify the errors in the rejection and how the claims particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1, 8, 10, 14, an 17 were submitted for entry to comply with the Examiner's communication, with wording and scope of the claims maintaining the wording and scope of the original disclosure and claims. The Applicant requested that the Examiner explain reason for his statement if he disagrees.

43. The appealed claims do not stand or fall together. Claims 1, 6, and 14 are separately patentable and do not stand or fall together because they are materially distinct with respect to 35 USC 112 second paragraph. Claims 1, 6, and 14 are separately patentable and do not stand or fall together because the claims are not unduly multiplied and have separate limitations, as recited in the claims.

The appealed claims do not stand or fall together. Claims 1, 8, and 17 are separately patentable and do not stand or fall together because they are materially distinct with respect to 35 USC 112 first paragraph. Claims 1, 8, and 17 are separately patentable and do not stand or fall together because the claims are not unduly multiplied and have separate limitations, as recited in the claims.

Claim 1 distinguishes and limits the invention to a method, in which a material is electrochemically loaded with second material, to monitor the loading that comprises loading said second material, driving a mechanical vibration of said material loaded with second material, monitoring the frequency of said vibration, and then relating said frequency of said vibration to the mass of said material.

Claim 8 distinguishes and limits the invention to a method of monitoring the loading within said material that comprises loading said second material, mechanically driving said material so as to enable a mechanical vibrations of said material, providing means to produce said vibrations, providing means to detect the frequency of said vibrations, and relating said frequency to the mass of said material.

Claim 17 distinguishes and limits the invention to an apparatus to monitor the loading of a material by a second material which includes in combination means to load said second material, means to enable mechanical vibrations of said material loaded with said second material, means to drive said vibrations, means to monitor the frequency of said vibrations, and means to relate said frequency to the mass of said material.

The appealed Dependent Claims are also separately patentable and do not stand or fall together because they are materially distinct, are not unduly multiplied, are each patentable, and have separate limitations, as recited in the claims. These reasons are discussed in each Arguments section.

44. Also presented to, but ignored by the Examiner, the Applicant made substantive arguments rebutting the Examiner's position in Applicant's Communication dated 10/22/03 which was a significant and complete response to the Office's Communications of 7/9/03 and 9/27/03, and in Applicant's Communication dated 11/25/03 which was a significant and complete response to the Office's Communication of 11/5/03, and in Applicant's Communication dated 1/28/04 which was a significant and complete response to the Office's Communication of 1/13/04.

Also presented to the Office was a Petition to the Commissioner dated 1/28/04 which was a significant and complete response to the Office's Communications.

### Proof Of Conformance With U.S.C. 112, Second Paragraph

45. The original specification describes the subject matter defined by each of the rejected claims, and enables any person skilled in the art to make and use the subject matter defined by each of the rejected claims, and sets forth the best mode contemplated by the inventor of carrying out his invention. The claims claim the invention.

Claim 1 (with the amendments submitted for entry) claims,

1. (amended, corrected) In a process in which a material is electrochemically loaded with second material, a method of monitoring the loading within said material that comprises:  
loading said second material,  
driving a mechanical vibration of said material loaded with second material,  
monitoring the frequency of said vibration, and  
relating said frequency of said vibration to the mass of said material.

This will now be demonstrated line by line.

The original specification teaches instructions for producing the desired result (page 4, lines 25-30 and page 6, lines 14-24),

"The system includes a novel cathode able to vibrate at a natural frequency, means to drive said frequency, and means to monitor said frequency, means to relate frequency changes to changes in the cathodic mass which heralds loading. In one configuration said means to vibrate said cathode occurs by an applied external magnetic field intensity."

"Figure 1 is a simplified three-dimensional diagram of the reaction monitoring system, showing an electrochemically loading system ("reaction system") containing the vibrating cathode, and accompanied by the optical monitoring system and the orthogonal magnetic pumping coil."

"Within the reaction chamber (labeled as number 16) is the platinum anode (labeled a number 60), and the palladium cathode (labeled as number 1). These electrodes are driven by an external electrical power system (labeled as number 50)."

The original specification continues and teaches (page 7, lines 1-8) and elaborates for those skilled in the art to make and use a vibrational system to measure loading.

**"The cathode (labeled as number 1) has a variety of positions of which three are shown. These displacements are greatly magnified in Figure 1. For simplicity the reactor (16) is filled to the top."**

**"When this novel cathode does move, it interferes with an optical beam (labeled as number 12 in Figure 1)."**

This is claimed in Claim 1 in the first few lines as follows:

1. (amended, corrected) In a process in which a material is electrochemically loaded with second material, a method of monitoring the loading within said material that comprises:  
loading said second material, ....
- 

The original specification teaches (page 7, line 10 through 19), the best mode contemplated by the inventor of carrying out his invention using the optical subsystem (referring to the figures).

**"The optical beam originates from an optical laser contained in an optical irradiator subsystem (labeled as number 30) and is detected electrooptically by an optical detection subsystem (labeled as number 31). The photodetector and associated equipment are not shown in this figure."**

**"The repetitive cutoff of the optical beam occurs due to the physical displacement of the cathode during an oscillation as described herein. These oscillations may occur during the loading of said cathode, or may occur periodically."**

This is claimed in Claim 1 in the line as follows:

.... monitoring the frequency of said vibration, ...

The original specification (page 7, lines 19-23, page 8, lines 1-6), continues with the teaching of how the vibrational frequency relates to the loading.

**"The mass of the cathode (increasing by adsorption of deuterons) increases antecedent to the desired reactions, and results in a decreasing of the frequency of said oscillation (vide infra). The mass is derived from the decrease in oscillation frequency."**

**"The frequency information is collected, and all the subunits are driven, by a central control unit (labeled as number 23). Said control unit also powers the means to drive said vibrational frequency, consisting of a power source (labeled as number 42) and a coil (labeled as number 41, of which only a few turns are shown in Figure 1)"**

This is claimed in Claim 1 in the line as follows:  
relating said frequency of said vibration to the mass of said material.

---

**The original specification teaches (page 13, lines 21-24 and page 14, lines 25-27) for those skilled in the art the subject matter with detailed instructions for producing the desired result,**

"Turning now to Figure 3, shown is the horizontal two-dimensional slice through the reaction cell showing the optical monitoring system and the orthogonal magnetic pumping coil. The view is through the top of the reactor (labeled as number 16). The vertical cathode appear as a round central dot (labeled as number 1). For simplicity, the anode, the electrical interconnections, and electric drive system are not shown."

**"The magnetic susceptibility of palladium and deuteron-filled palladium (or other metal) is what creates the energy transfer to the vibrational frequency of the cathode. Table 3 presents the relevant susceptibilities."**

The original specification teaches (page 9, lines 1-11), other modes contemplated by the inventor of carrying out his invention (referring to the figures).

**Figure 2 shows that the cathode may be covered over a fraction of its surface by another "springy" material so as to alter the resonant frequency of the vibrating cathode. Said material is labeled as number 13."**

This is claimed in Claim 1 in the line as follows:  
driving a mechanical vibration of said material loaded with second material,

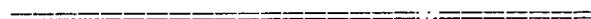
The original specification teaches (page 8, lines 16-26, and then on page 12 lines 26-28) in detail the components and physical arrangement of subsystems for those skilled in the art the subject matter defined by each of the rejected claims.

"The optical beam (labeled as number 12) is shown passing directly in front of the cathode. Part of the cathode is hidden in the figure due to the beam. The optical beam is provided by a laser (labeled as number 18), and is directed by appropriate optical lenses and/or beam splitters (labeled as number 19) located in the optical subsystems. Said beam is detected by the detector subsystem, containing the optical detectors (e.g. a phototransistor (labeled as number 20), an event detector (e.g. Schmidt trigger) to detect transitions (labeled as number 21) and a frequency counter (labeled as number 22). The optical subsystems are controlled by the control unit (labeled as number 23)"

"Because the natural frequency can be counted with a laser beam and photodetector (coupled to a trigger and frequency counter), an accurate in situ determination of frequency is possible."

This is claimed in Claim 2 in the line as follows:

2. A process as in claim 1 wherein the frequency of said vibration is followed by the material producing interference with an optical beam.



In another embodiment, the original specification teaches an variation (page 16, lines 1-6),

"Yet another monitoring configuration involves the use of a second external mass coupled to the above cited large external mass. Forced mechanical vibration of said second external mass will eventually couple phonons to the cathode and thereby cause it to vibrate at its own natural frequency. The monitoring system would be similar to that described above."

This is claimed in Claim 5 in the line as follows:

5. A process as in claim 1 wherein said means to provide drive of said vibration comprises coupling said material to a second mass located external to said material.

The original specification teaches (page 14 lines 1-8) for those skilled in the art the subject matter defined by each of the rejected claims regarding the electric and magnetic fields in the present invention.

"... The optical irradiator subsystem and optical detection subsystem are labeled as numbers 30 and 31. In the configuration shown in figure 3, said cathode (labeled as number 1) is electromagnetically driven by the transverse magnetic coil (labeled as number 41). For the monitoring configuration, said cathode is driven periodically by the driving subsystem (labeled as number 42) to produce a magnetic field intensity (with flux lines labeled as number 43) located in the vicinity of said cathode (1)."

This is claimed in Claim 6 in the line as follows:

6. A process as in claim 5 wherein said second mass is an electromechanical device capable of a vibration.

46. The Examiner states,

*"Claim 1 recites a "process for producing a product using a material which is electrically loaded with a second material. The disclosure is insufficient as what exactly is this so-called "product."*

The Applicant has now offered Amendments to further comply. If this is insufficient, the Applicant hereby request the Examiner to be specific and explain why it is not sufficient, and what it is that the Examiner does not understand, given the clear statements in the original specification, claims, and figures, and the corroboratory statements of the affiants. Furthermore, an amended Claim 1 hereby is submitted for entry to comply with the Examiner's communication. The claims now differ even more significantly from the cited art, and are even more clearly consistent with the original specification and claims. Hopefully this will satisfy the Examiner.

47. The Examiner states,

*"Claims 1, 8 and 17 recite the limitation, "mechanically coupling said material." The claims are vague, indefinite and incomplete as to what the material is coupled to."*

The Examiner has ignored that the Applicant stated,

*"Applicant has discussed this and it was understood by the Previous Examiner Wasil, the many Declarants, and even the Federal Appellate Court. For this reason, and for the additional reason below which demonstrate the Examiner is in error, the Applicant request the Examiner to be specific and explain why it is not sufficient, and what it is that the Examiner does not understand, given the clear statements in the original specification, claims, and figures, and the corroboratory statements of the affiants."*

The Examiner has not responded to Applicant's arguments. The Applicant's arguments have not been fully considered, and instead have been ignored substantively. Therefore it is impossible to tell how the Examiner weighed any of Applicant's arguments. There is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. Nonetheless, in response, the Applicant has now offered Amendments to further comply. If this is insufficient, then the Applicant hereby requests the Examiner to be specific and explain why it is not sufficient, and what it is that the Examiner does not understand, given the clear statements in the original specification, claims, and figures, and the corroboratory statements of the affiants.

Furthermore, amended Claims 1, 8, and 17 were submitted for entry to comply with the Examiner's communication. The claims now differ even more significantly from the cited art, and are even more clearly consistent with the original specification and claims. Hopefully this will satisfy the Examiner.

48. The Examiner states,

*"Claims 1 and 10 recite the limitation, "providing means to follow the frequency of said vibration." The claims are vague and indefinite as to what is meant by the term, "to follow."*

The Applicant has now offered Amendments to further comply. If this is insufficient, the Applicant hereby requests that the Examiner to be specific and explain why it is not sufficient, and what it is that the Examiner does not understand, given the clear statements in the original specification, claims, and figures, and the corroboratory statements of the affiants.

Furthermore, Claims 1 and 10 were submitted for entry to comply with the Examiner's communication. The claims now differ even more significantly from the cited art, and are even more clearly consistent with the original specification and claims. Hopefully this will satisfy the Examiner.

49. The Examiner states,

*"4. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention."*

**THE TRUTH - The Examiner Has Been Substantively Unresponsive, This was Discussed Previously**

The Examiner has been unresponsive to Applicant's arguments even though they were fully discussed in significant detail in the previous Communication from the Applicant to the Examiner on pages 11 through 15. For example, in said Communication, the Applicant took the time to respond to the Examiner and wrote the following comments and questions.

#### **"PURPORTED INDEFINITESS**

**It is disingenuous for the Examiner to claim there is indefiniteness in the light of the many missives with the previous Examiner, Daniel Wasil, and in the light of the peer-reviewed cited publication, and in the light of the Declarants, affiants, and Amicus Curiae who are skilled-in-the-art, and especially in the light of the federal court [In re Swartz 00-1107] which had no trouble understanding the invention.**

"... (I)ndefiniteness in claim language is of semantic origin" [In re Hammack, 427 F.2d 1384 n.5, 166 USPQ 209 n.5 (CCPA 1970)]

and indefiniteness is the opposite of definiteness. Applicant has fully complied with the definiteness requirement of the second paragraph of 35 U.S.C. §112. The original specification and claim adequately presented the claimed invention so that an artisan, or those skilled in the art, could practice it without undue experimentation [In re Wands, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed.Cir.1988)]. Definiteness is a characteristic of a patent claim in which claim language makes the scope of the claim clear to a person skilled in the art to which the invention pertains [MPEP 2173, MPEP 2173.02, MPEP 2173.05(a)]. Pursuant, to MPEP 2173, Applicant claimed with particularity, and did point out and distinctly claim the invention. Applicant's claims are therefore definite because the claims are precise, clear, correct, and unambiguous to a person skilled-in-the-art and, therefore, there was definiteness because the specification did conclude claims particularly pointing out and distinctly claiming the subject matter."

50. Also ignored by the Examiner is the following argument, and request, by the Applicant citing *Ex parte Ionescu*,

**"DEFINITENESS BECAUSE OF CITED ISSUES ADDRESSED"**

16. 35 U.S.C. 112, second paragraph requires the Examiner had to provide reasons why the terms in the claims and/or scope of the invention are unclear "in a positive and constructive way, so that minor problems can be identified and easily corrected, and so that the major effort is expended on more substantive issues." All definiteness issues are hereby addressed. If there are other issues with Claims 1-20, the Examiner is asked to with specificity and clarity further explain what the rejection is based on [*Ex parte Ionescu*, 222 USPQ 537, 539 (Bd. App. 1984)]. "

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. The Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response.

51. Also ignored by the Examiner is the following argument by the Applicant citing *Ex parte Ionescu*,

"17. There is definiteness because, supplementing the detailed specification, the Applicant submits further corroboratory expert testimony [*Ex parte Gray*, 10 USPQ2d 1922, 1928 (Bd. Pat. App. & Inter. 1989)] including Declarations and Amicus Curiae Briefs --which must be reviewed carefully. The Examiner must accurately discuss the invention as it is actually taught in the original specification and claims. The claimed invention should be the focus of the definiteness requirement."

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner.

Attention is now directed to the fact that the *Amicus Curiae* Brief of Talbot Chubb [Exhibit "14", 2/22/01], *Amicus Curiae* Brief of Drs. Edmund Storms [Exhibit "10", 2/21/01], Averment 4 in the *Amicus Curiae* Brief of Mr. Rotegard [Exhibit "12", 2/21/01], Pages 4 through 8 in *Amicus Curiae* Brief of Thomas Valone [Exhibit "11", 2/24/01], and pages 2-5 in the Straus Declaration [Exhibit "8", November 27, 1992] have been ignored even though the affiants have probative value and even though the averments prove operability of the present invention. These could not have been made without definiteness.

Attention is now directed to the fact that the *Amicus Curiae* Brief of Drs. Edmund Storms [Exhibit "10", 2/21/01], *Amicus Curiae* Brief of Hal Fox [Exhibit "18", 5/8/02], *Amicus Curiae* Brief of Eugene Mallove [Exhibit '20", 5/8/02 ], Declaration of Scott Chubb [Exhibit "15", 8/13/01], Declaration of Hal Fox [Exhibit "16", 5/16/95], Declaration of Mr. Rotegard [Exhibit "13", 5/15/94], Declaration of Hal Fox [Exhibit "17", 8/14/01], Declaration of Eugene Mallove [Exhibit "19", 5/6/94], and Straus Declaration of [Exhibit "9", 5/22/94] have been ignored even though the affiants have probative value and even though the averments prove utility of the present invention. These could not have been made without definiteness.

It is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. The Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response.

NOTA BENE: Attention of the Board is directed to the simple fact that all matters were both resolved and discussed by the Appellant, prior to the murder of Appellant's Declarant, Dr. Eugene Mallove, whose statements have been disparaged by the Office for several years. It is unfortunate that Dr. Mallove strived so hard to make the Court and the Board aware of the truth only to have his words throttled by the Office, before he was brutally murdered six weeks ago.

To give the Board a second opportunity to hear the words of the late Dr. Mallove, and to further prove operability of the Appellant's cold fusion systems, Appendices C, D, and E are included to demonstrate independent comments for the Board, and Court, if necessary.

52. Also ignored by the Examiner is the following argument by the Applicant citing *In re Prater*,

"There is definiteness because the pending claims must be given the broadest reasonable interpretation consistent with the specification [*In re Prater*, 415 F.2d 1393, 162 USPQ 541 (CCPA 1969), also MPEP Section 2111 - Section 2111.01] and the specification stated the meaning of the terms in the claims [*In re Zletz*, 893 F.2d 319, 13 USPQ2d 1320 (Fed. Cir. 1989)]."

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. Therefore it is

impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals.

53. Also ignored by the Examiner is the following argument by the Applicant citing 2173.05(b),

**"Furthermore, there is definiteness because pursuant to 2173.05(a) the meaning of every term used in the claims was apparent from the prior art, cited art, and from the specification and drawings at the time the application was filed. There is definiteness because the claims must each be given the broadest reasonable interpretation consistent with that which one who is skilled-in-the-art would reach [In re Morris]. In this case, it is corroborated by both the Declarations, Amicus Briefs, and peer-reviewed publications. There is definiteness because the preamble of claim 1 recites the purpose of the process, and the process steps are able to stand alone (MPEP 2111.02). There is definiteness because pursuant to 2173.05(b) the fact that claim language may not have been precise cannot automatically render the claim indefinite under 35 U.S.C. 112, second paragraph [Seattle Box Co., v. Industrial Crating & Packing, Inc., 731 F.2d 818, 221 USPQ 568 (Fed. Cir. 1984)]. There is definiteness because acceptability of the claim language depends on whether one of ordinary skill-in-the-art would understand what is claimed, and that is confirmed by the light of the specification, the Declarations, the Amicus Briefs, and the peer-reviewed publications [Ex parte Porter, 25 USPQ2d 1144, 1145 (Bd. Pat. App. & Inter. 1992)]."**

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. The Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response.

54. Also ignored by the Examiner is the following argument by the Applicant citing "Peer-reviewed Publications",

**"19. There is definiteness because Applicant provided (and provides again), in addition to the detailed specification, corroboratory probative reference in the form of Peer-reviewed Publications [e.g. Swartz (1992), Swartz (1996)] which prove understanding by one skilled in the art [Atmel Corp. v. Information Storage Devices Inc., Fed. Cir., No. 99-1082, 12/28/99]."**

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. The Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response.

55. Also ignored by the Examiner is the following argument by the Applicant citing 35 U.S.C. 102 in the present case's rejection, Applicant notes to the Examiner that there had to have been definiteness because the Examiner could not have made the rejection under 35 U.S.C. 102 of claims over the other cited art, had the invention truly been without definiteness. The fact that claim 1 was found by the examiner to be anticipated by any combination of the other cited Art, proves that the present invention obviously has definiteness.

56. Claims 1, 8, 10, 14, an 17 were submitted for entry to comply with the Examiner's communication. The claims now differ even more significantly from the cited art, and are even more clearly consistent with the original specification and claims. The wording and scope of the claims maintain the wording and scope of the original disclosure and claims. Hopefully this will satisfy the Examiner and they will be entered. The Applicant requests that the Examiner explain reason for his statement if he disagrees.

### **Definiteness Corroborated By Declarants**

57. The Examiner has not responded to the fact that Definiteness is proven by way of Applicant's previously-submitted expert testimony [Ex parte Gray, 10 USPQ2d 1922, 1928 (Bd. Pat. App. & Inter. 1989)], including Declarations and Amicus Curiae Briefs. The simple proof is that there has never been a problem for the Examiner in this regard, or with the Declarants who are skilled-in-the-art, or even with the court [In re Swartz 00-1107 and In re Swartz 00-1108]. The Examiner must accurately discuss the invention as it is actually taught in the original specification and claims. The claimed invention should be the focus of the definiteness requirement.

### **Definiteness Supported By The Claims**

58. The Examiner has not responded to the fact that there is definiteness because the pending claims must be given the broadest reasonable interpretation consistent with the specification [In re Prater, 415 F.2d 1393, 162 USPQ 541 (CCPA 1969), also MPEP Section 2111 - Section 2111.01] and the specification stated the meaning of the terms in the claims [In re Zletz, 893 F.2d 319, 13 USPQ2d 1320 (Fed. Cir. 1989)]. Furthermore, there is definiteness because pursuant to 2173.05(a) the meaning of every term used in the claims was apparent from the prior art, cited art, and from the specification and drawings at the time the application was filed. There is definiteness because the claims must each be given the broadest reasonable interpretation consistent with that which one who is skilled-in-the-art would reach [In re Morris]. In this case, it is corroborated by both the Declarations, Amicus Briefs, and peer-reviewed publications.

### **Definiteness Supported By The Office Rules**

59. The Examiner has not responded to the fact that there is definiteness consistent with Office Rules. The preamble of claim 1 recites the purpose of the process, and the process steps are able to stand alone (MPEP 2111.02). Pursuant to 2173.05(b), the fact that claim language may not have been precise cannot automatically render the claim indefinite under 35 U.S.C. 112, second paragraph [Seattle Box Co., v. Industrial Crating & Packing, Inc., 731 F.2d 818, 221 USPQ 568 (Fed. Cir. 1984)].

### **Additional Reason Overcoming The Examiner's Position - Definiteness Supported ] Probative Reference**

60. The Examiner has not responded to the fact that the peer-reviewed reference support definiteness [Swartz (1992), Swartz (1994A), Swartz (1994B), Swartz (1997A), Swartz (1997B), Swartz (1998A)] which prove understanding by one skilled in the art [Atmel Corp. v. Information Storage Devices Inc., Fed. Cir., No. 99-1082, 12/28/99].

**Additional Reason Overcoming The Examiner's Position**

61. Applicant notes to the Examiner that there had to have been definiteness because the Examiner could not have made the previous rejections under 35 U.S.C. 102 had the invention truly been without definiteness. Applicant reserves the right to Petition this matter, especially in the light of the un-rebutted ignored Declarations.

62. In summary, there IS definiteness because acceptability of the claim language depends on whether one of ordinary skill-in-the-art would understand what is claimed, and that is confirmed by the light of the specification, the Declarations, the Amicus Briefs, and the peer-reviewed publications [Ex parte Porter, 25 USPQ2d 1144, 1145 (Bd. Pat. App. & Inter. 1992)]. The Examiner has not responded to the fact that 35 U.S.C. 112, second paragraph requires the Examiner had to provide reasons why the terms in the claims and/or scope of the invention are unclear

**"in a positive and constructive way, so that minor problems can be identified and easily corrected, and so that the major effort is expended on more substantive issues."**

All definiteness issues were addressed by Appellant. Then, Applicant, asked the Examiner that if there are other issues with Claims 1 through 20 to identify with specificity and clear explanation what the rejection is based on [Ex parte Ionescu, 222 USPQ 537,539 (Bd. App. 1984)]. There has been no substantive clear response.

**ARGUMENT REJECTION UNDER 35 U.S.C. 102**

63. Claims 1, 3-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Masaaki (JP-06018683). For said rejection under 35 U.S.C. 102, the Applicant fully and completely specified the errors in the rejection and the specific limitations in the rejected claims which are not described in the prior art relied on in the Office's rejection. Applicant also explained how such limitations render the claimed subject matter novel over the prior art. Applicant also submitted evidence in a timely fashion which was ignored by the Office

64. The appealed claims do not stand or fall together. Claim 1 distinguishes and limits the invention to a method, in which a material is electrochemically loaded with second material, to monitoring the loading that comprises loading said second material, driving a mechanical vibration of said material loaded with second material, monitoring the frequency of said vibration, and then relating said frequency of said vibration to the mass of said material. Claim 1 is distinguished from the cited references and prior art with respect to 35 USC 102.

65. NOTA BENE: As presented to, but ignored by the Examiner, many of the cited references followed the present invention. The Examiner has been disingenuous that "loading" was not in the original specification when in fact, it was not only discussed, but a second patent application also teaching loading was cited in said original specification. As presented to, but ignored by the Examiner, the application Serial no. 07/ 371,937 --of which the present invention '480 is a continuation -- was filed 06/27/89. The date of Masaaki is March 7, 1992. Attention is directed to the fact that the present application, '480, therefore precedes the cited art. Nonetheless, for argument's sake, and to demonstrate further error in the Examiner's position, Masaaki was addressed in detail and shown to be not relevant.

66. Also presented to, but ignored by the Examiner, the Applicant made substantive arguments rebutting the Examiner's position in Applicant's Communication dated 10/22/03 which was a significant and complete response to the Office's Communications of 7/903 and 9/27/03, and in Applicant's Communication dated 11/25/03 which was a significant and complete response to the Office's Communication of 11/5/03, and in Applicant's Communication dated 1/28/04 which was a significant and complete response to the Office's Communication of 1/13/04.

Also presented to the Office was a Petition to the Commissioner dated 1/28/04 which was a significant and complete response to the Office's Communications.

67. As the original specification states (page 17, lines 17-22; where the pages are as numbers in the original specification), .the invention is novel.

**"A method to monitor loading using a vibration includes a novel cathode able to vibrate. The method and apparatus includes means to drive said frequency, and means to monitor said frequency, means to relate frequency changes to changes in the cathodic mass which herald loading. In one configuration said means to vibrate said cathode occurs by an applied external magnetic field intensity. "**

The original specification teaches (page 3, lines 22-29; and page 17, lines 10-15) for those skilled in the art the range of the novel subject matter defined by each of the rejected claims.

"The present invention relates to processes and systems involving loading, such as palladium internally filling ["loading"] with deuterons, but it has relevance as well, to deuteron storage devices using deuterium (an isotope of hydrogen), to fuel cells, to nuclear fusion, to metallurgy, and to systems using loading. The method to monitor loading using a vibration includes a novel cathode able to vibrate at a natural frequency, means to drive said frequency, and means to monitor said frequency, means to relate frequency changes to changes in the cathodic mass which herald loading."

The original specification (page 41, lines 1-3), continues with the teaching of why this invention is novel.

"Accordingly, it is a principal object of the present invention to provide a novel method and system to monitor loading. Specifically, the loading is monitored in situ."

The original specification continues, with an overview of instructions taught for producing the desired novel result (page 4, lines 25-30),

"The system includes a novel cathode able to vibrate at a natural frequency, means to drive said frequency, and means to monitor said frequency, means to relate frequency changes to changes in the cathodic mass which heralds loading. In one configuration said means to vibrate said cathode occurs by an applied external magnetic field intensity."

The original specification teaches (page 6, lines 14-18) the best mode contemplated by the inventor of carrying out his novel invention with respect to the vibrating cathode (referring to the figures).

"Figure 1 is a simplified three-dimensional diagram of the reaction monitoring system, showing an electrochemically loading system ("reaction system") containing the vibrating cathode, and accompanied by the optical monitoring system and the orthogonal magnetic pumping coil."

The original specification then continues and teaches (page 6, lines 21-24 and page 7, lines 1-8), the best mode contemplated by the inventor of carrying out his novel invention using an electrochemical system used to load the metal.

"Within the reaction chamber (labeled as number 16) is the platinum anode (labeled a number 60), and the palladium cathode (labeled as number 1). These electrodes are driven by an external electrical power system (labeled as number 50)."

"The cathode (labeled as number 1) has a variety of positions of which three are shown. These displacements are greatly magnified in Figure 1.

For simplicity the reactor (16) is filled to the top. Not shown are the mechanical system which enables said cathode to vibrate between said displacements, or the cover of the reactor."

"When this novel cathode does move, it interferes with an optical beam (labeled as number 12 in Figure 1)."

The original specification teaches (page 7, line 10 through 14, lines 16-19), the best mode contemplated by the inventor of carrying out his invention using a novel optical subsystem (referring to the figures).

"The optical beam originates from an optical laser contained in an optical irradiator subsystem (labeled as number 30) and is detected electrooptically by an optical detection subsystem (labeled as number 31). The photodetector and associated equipment are not shown in this figure."

"The repetitive cutoff of the optical beam occurs due to the physical displacement of the cathode during an oscillation as described herein. These oscillations may occur during the loading of said cathode, or may occur periodically."

The original specification (page 7, lines 19-23), continues with the teaching of how the vibrational frequency relates to the loading.

"The mass of the cathode (increasing by adsorption of deuterons) increases antecedent to the desired reactions, and results in a decreasing of the frequency of said oscillation (vide infra). The mass is derived from the decrease in oscillation frequency."

In another embodiment, as the original specification teaches, the observation of the vibrating cathode can be undertaken through specially prepared novel monitoring windows (page 9, lines 13-15),

"... provisions can be made for transparent windows (labeled as number 17) on said reactors. This would be done to permit monitoring of said vibrational cathode."

The original specification teaches (page 9, lines 1-11), other novel modes contemplated by the inventor of carrying out his invention (referring to the figures).

Figure 2 shows that the cathode may be covered over a fraction of its surface by another "springy" material so as to alter the resonant frequency of the vibrating cathode. Said material is labeled as number 13. Said material thereby forms a single composite mass with either the cathode (e.g. palladium) or a wire leading to said cathode (e.g. platinum). Said composite mass provides the additional possibility of forming a structural bonding to, and an electrical insulation from, a large mass (labeled as number 14), located outside of the reaction cell. Said reinforcing material (13) may even be bolted (labeled as number 15) to said large external mass (labeled as number 14)."

The original specification teaches (page 8, lines 16-26, and then on page 12 lines 26-28) in detail the components and novel physical arrangement of subsystems for those skilled in the art the subject matter defined by each of the rejected claims.

"The optical beam (labeled as number 12) is shown passing directly in front of the cathode. Part of the cathode is hidden in the figure due to the beam. The optical beam is provided by a laser (labeled as number 18), and is directed by appropriate optical lenses and/or beam splitters (labeled as number 19) located in the optical subsystems. Said beam is detected by the detector subsystem, containing the optical detectors (e.g. a phototransistor (labeled as number 20), an event detector (e.g. Schmidt trigger) to detect transitions (labeled as number 21) and a frequency counter (labeled as number 22). The optical subsystems are controlled by the control unit (labeled as number 23)"

"Because the natural frequency can be counted with a laser beam and photodetector (coupled to a trigger and frequency counter), an accurate in situ determination of frequency is possible."

In another embodiment, as the original specification continues, detailed instructions are taught involving other novel configurations. to produce the desired result (page 15, lines 25-30,

"Another monitoring configuration involves using said external magnetic field intensity to align the magnetic moments of the deuterons within said cathode. The application of a suitable radio-frequency power source and the ability to measure the power absorption also enables the cathode to have its intravolumetric deuteron population measured in situ."

In another embodiment, the original specification teaches an additional novel variation (page 16, lines 1-6),

"Yet another monitoring configuration involves the use of a second external mass coupled to the above cited large external mass. Forced mechanical vibration of said second external mass will eventually couple phonons to the cathode and thereby cause it to vibrate at its own natural frequency. The monitoring system would be similar to that described above."

68. The Examiner states,

*"Masaski discloses an oscillating drive that facilitates fine-tuning of frequency of vibration. Knowledge of such frequency is necessary, e.g., to facilitate repeatability of operating conditions and results. Any one of the secondary references can provide the teaching for measurement of said frequency."*

**THE TRUTH - The Examiner Has Been Substantively Unresponsive, This was Discussed Previously**

The Examiner has been unresponsive to Applicant's arguments even though they were fully discussed in significant detail in the previous Communication from

the Applicant to the Examiner on pages 16 through 27. For example, in said Communication, the Applicant took the time to respond to the Examiner and wrote the following comments.

"Masaaki (06-018683) describes an oscillating electrode for normal temperature nuclear fusion which is very different from the present invention. JP-06-018683 --as it claims-- is simply an apparatus where the purpose of the oscillation is to "expanded the reaction area". Masaaki has a deuterium tank (18), a "negative electrode" (1) of "pure nickel plate plated with palladium or titanium". Masaaki resonates the electrode to increase the surface area. Masaaki says "the loss in the transmission of the vibration is limited thereby promoting normal temperature nuclear fusion". In Masaaki, hydrogen gas is generated. In Masaaki, there is no loading, no discussion of loading, and no measurement of loading. Furthermore, in Masaaki, there is no measurement of frequency change of the vibrating electrode from loading, and no change in the frequency of the vibration. The vibrating cathode of Masaaki is used for a different reason and there is no measurement of loading. Masaaki resonates the electrode to increase the surface area. This is in contrast to the present application and invention where the loading occurs within the cathode and where the vibrations are used to measure loading. Thus, Masaaki (06-018683) is located quite far from the present invention, and it is improper to compare JP-06-018683 to the present invention."

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. The Examiner did not cite Applicant's arguments, nor did the Examiner discuss Applicant's arguments, nor did the Examiner rebut Applicant's arguments. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. Because the Examiner was requested to answer and respond with specificity, the Examiner has apparently ignored the Office rules, and expectations of reasonable people, and has defied the laws and regulations arising from the US Constitution which led to the creation of the Patent Office. Therefore, given the above, the Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response. Specifically, the Applicant hereby requests to know the scientific basis, or any basis which allows the Examiner to dismiss the Argument that,

"The vibrating cathode of Masaaki is used for a different reason and there is no measurement of loading. Masaaki resonates the electrode to increase the surface area. This is in contrast to the present application and invention where the loading occurs within the cathode and where the vibrations are used to measure loading."

69. The Examiner states,  
*"Applicant's claim language reads on the figures in JP-06-018683 as follows:  
a) "means to drive vibration" reads on line winding 10".*

**THE TRUTH - The Examiner Has Been Substantively Unresponsive,  
This was Discussed Previously**

The Examiner has been substantively unresponsive because this was discussed in detail in the previous Communication from the Applicant to the Examiner on pages 17 through 19. For example, the Applicant wrote the following.

"Applicant's claim language does NOT read on the figures, or the text, or the claims, or the description, of JP-06-018683. In fact, the Examiner confuses simple differential equations. Does "means to drive vibration" really read on line winding 10? No. In fact, in the case of the '480, a single pulse is given and then the impulse response is followed. This is a far cry from a fixed frequency motor used in Masaaki (06-018683), cited by the Examiner. In 480, the single pulse, which is the "means to drive vibration" enables a frequency measurement which is the response of the electrode. Thus, in 480, the single pulse and the subsequent frequency measurement enables measurement of the electrode loading. In differential calculus, the natural frequency(ies) is(are) called the homogeneous response. By contrast, in Masaaki (06-018683), cited by the Examiner, e.g. *vide supra*, the line winding 10, and the other features, create the particular (or driven) response which is dominated by the equipment of Masaaki (06-018683). In differential calculus this is called the driven (or particular solution) response. The Examiner is referred to "Advanced Calculus For Applications, Second Edition" by Francis Hildebrand (1976). On pages 72 through 76, and also page 88, in the section entitled "Applications To Linear Differential Equations With Constant Coefficients", there is a discussion of the significant differences between forced vibrations of the cited art (oscillations actually, in said cited art) and the natural vibration of a loaded cathode as is discussed in the above entitled application. The examiner is specifically referred to equations 28 through 37b which reveal these mathematics well-known to those skilled in the art. In addition, the Examiner is referred to "Theoretical Mechanics: An Introduction To Mathematical Physics" (1929) by Joseph Ames and Francis Murnaghan. The examiner is specifically referred to pages 24 pages 124 to 139 for the well-known differences between harmonic vibrations (especially page 129). In addition the Examiner is referred to "Analytical Mechanics" (1962) by Grant Fowles. The Examiner is specifically referred to pages 80 through 84 for that harmonic analytic physics which is well-known to those skilled in the art, but apparently not the Office. With respect to these harmonic motions resulting from restoring force, as discussed in the above-entitled application, the examiner is referred to pages 43 through 45. By contrast, with respect to forced harmonic motion discussed in the cited art, the examiner is also referred to pages 51 through 55. The examiner is referred to "Calculus And Analytical Geometry" (1951, and 1960) by George Thomas Jr. The examiner is particularly referred to pages 895 through 900. In summary, it is inaccurate for the examiner to substitute

**forced harmonic motion [with partial differential equations having a particular solution] and the above entitled application where there is a vibration characterizing the loaded electrode, which is observed by its natural frequencies."**

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. It is impossible to tell how the Examiner weighed Applicant's arguments, there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. Because the Examiner was requested to answer and respond with specificity, given the above, the Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response. Specifically, the Applicant hereby requests to know the scientific basis, or any basis which allows the Examiner to dismiss the Argument that,

**"In summary, it is inaccurate for the examiner to substitute forced harmonic motion [with partial differential equations having a particular solution] and the above entitled application where there is a vibration characterizing the loaded electrode, which is observed by its natural frequencies."**

70. The Examiner states,  
"6. *Claims 1, 3-7 are rejected under 35 U.S.C. 102(b) as being anticipated by JP-06 018683. This reference discloses a vibrating electrode apparatus for room temperature fusion comprising a palladium cathode that is resonantly vibrated. The vibrating cathode is electrochemically loaded with deuterium from an electrolyte containing said hydrogen isotope. Applicant's claim language reads on the figures in JP-06-018683 as follows:*  
b) *"means to follow the frequency of vibration: reads on RF generator 11 that sets (i.e., "follows") the vibration frequency;*

**THE TRUTH - The Examiner Has Been Substantively Unresponsive, This was Discussed Previously**

The Examiner has been unresponsive to Applicant's arguments even though they were fully discussed in significant detail in the previous Communication from the Applicant to the Examiner on pages 19 through 20. For example, in said Communication, the Applicant took the time to respond to the Examiner and wrote the following comments.

**"Applicant's claim language does NOT read on the figures, or the text, or the claims, or the description, of JP-06-018683. Does "means to follow the**

frequency of vibration" really read on "RF generator 11 that sets (i.e., "follows") the vibration frequency"? No. In the case of the '480, a single pulse is given and then the impulse response is followed. The subsequent frequency measurement enables measurement of the electrode loading. This homogeneous response, again, is far from the driven system used in Masaaki (06-018683), inaccurately cited by the Examiner. The Examiner cites the "RF generator 11" which the Examiner correctly states that "sets" the vibration frequency. The Examiner is disingenuous when he metamorphoses this to claim that it "follows" the vibration frequency. In fact, Masaaki (06-018683) disagrees with the Examiner. The translation (assuming the Examiner's translation is even correct) states "11 is the AC power supply" which obviously DRIVES the vibration. In '480, the invention works by examination of "the homogeneous response". By contrast, in Masaaki (06-018683), the driven response yields no information about the electrode, but only gives information about the drive system."

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. It is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. Given the above, the Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response. Specifically, the Applicant hereby requests to know the scientific basis, or any basis which allows the Examiner to dismiss the Argument that,

"The Examiner cites the "RF generator 11" which the Examiner correctly states that "sets" the vibration frequency. The Examiner is disingenuous when he metamorphoses this to claim that it "follows" the vibration frequency. In fact, Masaaki (06-018683) disagrees with the Examiner. The translation (assuming the Examiner's translation is even correct) states "11 is the AC power supply" which obviously DRIVES the vibration. In '480, the invention works by examination of "the homogeneous response". By contrast, in Masaaki (06-018683), the driven response yields no information about the electrode, but only gives information about the drive system"

71. The Examiner states,  
*"6. Claims 1, 3-7 are rejected under 35 U.S.C. 102(b) as being anticipated by JP-06 018683. This reference discloses a vibrating electrode apparatus for room temperature fusion comprising a palladium cathode that is resonantly vibrated. The vibrating cathode is electrochemically loaded with deuterium from an electrolyte containing said hydrogen isotope.*  
*Applicant's claim language reads on the figures in JP-06-018683 as follows:*  
*c) "second mass" reads on structure that is coupled to the vibrating cathode at its exterior.*

**THE TRUTH - The Examiner Has Been Substantively Unresponsive, This was Discussed Previously**

The Examiner has been unresponsive to Applicant's arguments even though they were fully discussed in significant detail in the previous Communication from the Applicant to the Examiner on page 20. For example, in said Communication, the Applicant took the time to respond to the Examiner and wrote the following comment.

**"Applicant's claim language does NOT read on the figures, or the text, or the claims, or the description, of JP-06-018683. Does "second mass" really read on "structure that is coupled to the vibrating cathode at its exterior"? No. In the case of the '480, the natural frequency of the electrode is used to determine, via the impulse response, the loading of said electrode. This homogeneous response, of the present invention (vide supra), is far from the driven system used in Masaaki (06-018683), yet again inaccurately cited by the Examiner.**

As the original specification of '480 states (page 16),

**"Yet another monitoring configuration involves the use of a second external mass coupled to the above cited large external mass. Forced mechanical vibration of said second external mass will eventually couple phonons to the cathode and thereby cause it to vibrate at its own natural frequency."**

By contrast, the Masaaki structure that is coupled to the vibrating cathode at its exterior is used to hold the electrode and not drive it. Once again the Examiner confuses natural frequency and homogeneous response with clamp used to hold Masaaki's driven system.

Attention is now directed to the fact that said comment in Applicant's Communication has simply been ignored by the Examiner. The Examiner did not cite Applicant's arguments, nor did the Examiner discuss Applicant's arguments, nor did the Examiner rebut Applicant's arguments. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. Because the Examiner was requested to answer and respond with specificity, the Examiner has apparently ignored the Office rules, and expectations of reasonable people. Therefore, given the above, the Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner

to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response.

Specifically, the Applicant hereby requests to know the scientific basis, or any basis which allows the Examiner to dismiss the Argument that,

**"In the case of the '480, the natural frequency of the electrode is used to determine, via the impulse response, the loading of said electrode. This homogeneous response, of the present invention (vide supra), is far from the driven system used in Masaaki (06-018683), yet again inaccurately cited by the Examiner. .. By contrast, the Masaaki structure that is coupled to the vibrating cathode at its exterior is used to hold the electrode and not drive it. Once again the Examiner confuses natural frequency and homogeneous response with clamp used to hold Masaaki's driven system."**

72. The Examiner has been unresponsive to Applicant's arguments which the Applicant took the time to write to the Examiner, as in following comments and questions.

**"The Examiner is wrong for several reasons. First, the invention at issue in this case, '480, is claimed by Claims 1-20, and is generally speaking a vibrating electrode, composed of a metal such as palladium which has internal filling ("loading") with hydrogen, which is monitored for its natural frequency to reveal information about the loading, *in situ*, and non-invasively. Second, '480 has elements which are nowhere in JP-06-018683, or in any combination of the Examiner's cited art. Second, the Examiner has ignored that in the present invention, additional techniques are used and features exist, unlike JP-06-018683. Third, JP-06-018683 includes none of the features of the present invention. Where in JP-06-018683 is the vibrational cathode of the present invention used to measure loading? It is shown in Figures 1,2,3, and 4 of the original specification of the above-entitled invention. It is not in JP-06-018683.**

**Where in JP-06-018683 is the optical interrogating beam or other method to investigate the frequency of the vibrational cathode? It is shown in Figures 1, 2 and 3 of the original specification of the above-entitled invention. They are not in JP-06-018683.**

**Where in JP-06-018683 is the optical beam (labeled as number 12 in Figure 1), or the optical irradiator subsystem (labeled as number 30), or the optical detection subsystem (labeled as number 31)? They are shown in Figures 1,2 and 3 of the original specification of the above-entitled invention. They are not in JP-06-018683. Where in JP-06-018683 is the laser (labeled as number 18), the transparent windows (labeled as number 17), or the optical irradiator subsystem and optical detection subsystem (labeled as numbers 30 and 31)? They are shown in Figures 1, 2 and 3 of the original specification of the above-entitled invention. They are not in JP-06-018683.**

Where in JP-06-018683 is the optical lenses and/or beam splitters (labeled as number 19), or the detector subsystem, containing the optical detectors (e.g. a phototransistor (labeled as number 20), or the event detector (e.g. Schmidt trigger) to detect transitions (labeled as number 21), or the frequency counter (labeled as number 22)? They are shown in Figures 1,2 and 3 of the original specification of the above-entitled invention. They are not in JP-06-018683.

Where in JP-06-018683 is the lower large mass (labeled as number 11), or the "springy" material to alter the resonant frequency of the vibrating cathode (number 13), or the large mass (labeled as number 14) located outside of the reaction cell? They are not in JP-06-018683.

Where in JP-06-018683 is the modified cathode (labeled as number 1) with two sites on said cathode where platinum wires are attached (labeled as number 71 and 72 in Figure 5) which are used to create said intraelectrode additional electric field? Where in JP-06-018683 is the additional electric field internal to the loaded cathode, which in the present application is clearly shown in figure 5? They are not in JP-06-018683.

Where in JP-06-018683 is the teaching of controlling a volume within the loaded cathode using an additional electric field and an orthogonal applied magnetic field intensity as taught in the present invention? Where in JP-06-018683 is the applied magnetic field intensity orthogonal to the additional applied electric field? They are not in JP-06-018683. .... The Examiner has ignored the purposes and results, which are different. Masaaki (06-018683) is an oscillating electrode to have "expanded the reaction area". Masaaki resonates the electrode to increase the surface area. In Masaaki, there is no discussion of loading, and no measurement of loading. Furthermore, in Masaaki, there is no measurement of frequency change of the vibrating electrode from loading, and no change in the frequency of the vibration. In summary, the material of Applicant's invention, '480, does not read on JP-06-018683, as the Examiner suggests. This present invention is novel and not anticipated by the cited art, JP-06-018683."

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. Attention is now also directed to the fact that the questions in Applicant's Communication have also been ignored by the Examiner. The Commissioner, and Court, should note that the Examiner did not cite Applicant's arguments, nor did the Examiner discuss Applicant's arguments, nor did the Examiner rebut Applicant's arguments. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. Because the Examiner was requested to answer and respond with specificity, the Examiner has apparently ignored the Office rules, and

expectations of reasonable people, and has defied the laws and regulations arising from the US Constitution which led to the creation of the Patent Office. Therefore, given the above, the Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response. Specifically, the Applicant hereby requests to know the scientific basis, or any basis which allows the Examiner to dismiss the Argument that,

"The Examiner has ignored the purposes and results, which are different. Masaaki (06-018683) is an oscillating electrode to have "expanded the reaction area". Masaaki resonates the electrode to increase the surface area. In Masaaki, there is no discussion of loading, and no measurement of loading. Furthermore, in Masaaki, there is no measurement of frequency change of the vibrating electrode from loading, and no change in the frequency of the vibration."

73. Also ignored by the Examiner is the following by the Applicant,  
"Where in the cited references is the vibrational cathode to measure loading of the electrode, as featured in the present invention? It is shown in Figures 1,2,3, and 4 of the original specification of the above-entitled invention. It is not in the cited references. Where in the cited references is the additional electric field internal to the loaded cathode, clearly shown in figure 5? It is not in the cited references. Where in the cited references are the two additional electrodes on the sides of the loaded cathode (71 and 72, in figure 4) which are used to create said intraelectrode additional electric field? They are not in the cited references. Where in the cited references is the optical beam or other method to investigate said vibrational cathode to measure loading of the electrode, as is done in the present invention? It is shown in Figures 1, 2 and 3 of the original specification of the above-entitled invention. It is not in the cited references. Where in the cited references is the teaching of controlling a volume within the loaded cathode using an additional electric field and an orthogonal applied magnetic field intensity as taught in the present invention? It is shown in Figure 5 and taught in the original specification of the above-entitled invention. It is not in the cited references. The only reasonable conclusion is that the present invention is novel, not obvious, and is distinguished from all previous, and cited, art.

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. Attention is now also directed to the fact that the questions in Applicant's Communication have also been ignored by the Examiner. The Commissioner, and Court, should note that the Examiner did not cite Applicant's arguments, nor did the Examiner discuss Applicant's arguments, nor did the Examiner rebut Applicant's arguments. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. The Applicant hereby requests to know the scientific basis, or any basis which allows the Examiner to dismiss the Argument that,

**"Where in the cited references is the vibrational cathode to measure loading of the electrode, as featured in the present invention? It is shown in Figures 1,2,3, and 4 of the original specification of the above-entitled invention. It is not in the cited references."**

## LAW

74. Appellant respectfully notes that this was discussed in the previous Communication but has not been addressed with specificity and precision. These patents are very different far beyond the fact that they do not involve loading, beyond the fact that they use other components not in the present invention, and have a different purpose and method, and they do not disclose the present invention

It is far beyond that. The material of Applicant's invention, '480 does not read on the Examiner's cited art.

Furthermore, it is improper to compare Masaaki (JP-06018683) to the present invention for several reasons which the Applicant already discussed with the Examiner, but to which the Examiner has NOT yet completely and substantively responded.

This includes dates, and the present application was first.

75. Therefore, given the above, the independent claims, and hence all claims, distinguish over the reference cited under Sec. 102. Thus, the present invention, such as palladium which has the unique property of internally filling ("loading") with hydrogen, as a sponge fills with water. The 'vibrational electrode' is monitored for its natural frequency to reveal information about the electrode, specifically for information about "how much" hydrogen is within the electrode based upon a mass change of said electrode that results from said loading. This *in situ* monitoring occurs non-invasively and without disturbing the reactions - which are features of great and significant utility. As the original specification and claims [Appl. 07/371,937 and now '480 as a Continuation] teach, the invention solves the long-standing problem of monitoring the electrode. This monitoring used to be complicated and invasive and has actually involved stopping the desired reactions underway, then electrically uncoupling the electrode, "thereby not only stopping the reaction, but also cross-contaminating both the cathode and the laboratory" by physically removing the electrode, drying it off, and actually weighing it on a scale -- before returning it to the disrupted electrical circuit. With Applicant's invention, it is unnecessary to interrupt the electrical circuit because in the present invention means are provided to vibrate the electrode and, simply put, the 'vibrational cathode' is monitored to reveal information about the electrode. This monitoring occurs remotely and non-invasively and without disturbing the reactions - features of great utility. **These are novel.**

Given the above, the Examiner should be fair, should answer the Declarations and should answer with specificity all explicitly discussed issues herein and in the previously submitted but substantially ignored response, or after reconsideration with respect to novelty (Sec. 102), allowance is respectfully requested by the Applicant.

Given the above, reconsideration with respect to novelty (Sec. 102) is respectfully requested by the Appellant.

## **ARGUMENT - Claim Rejections under 35 USC § 103**

76. Claims 8-20 are rejected under 35 U.S.C.103(a) as being unpatentable over JP 06-018683 in view of any one of Wang et al. (U.S. 5,495,767), Steinlecher et al. (U.S. 5,883,715) or Zang et al. (U.S. 5,838,439). For said rejection under 35 U.S.C. 103, the Applicant fully and completely specified the errors in the rejection and the specific limitations in the rejected claims which are not described in the prior art relied on in the Office's rejection. Applicant also explained how such limitations render the claimed subject matter non-obvious over the prior art. Applicant also submitted evidence in a timely fashion which was ignored by the Office

77. The appealed claims do not stand or fall together. Claims 8 and 17 are separately patentable and do not stand or fall together because they are materially distinct with respect to 35 USC 112 first paragraph. Claims 8 and 17 are separately patentable and do not stand or fall together because the claims are not unduly multiplied and have separate limitations, as recited in the claims. The dependent claims are separately patentable and do not stand or fall together because they are also materially distinct.

Claim 8 distinguishes and limits the invention to a method of monitoring the loading within said material that comprises loading said second material, mechanically driving said material so as to enable a mechanical vibrations of said material, providing means to produce said vibrations, providing means to detect the frequency of said vibrations, and relating said frequency to the mass of said material.

Claim 17 distinguishes and limits the invention to an apparatus to monitor the loading of a material by a second material which includes in combination means to load said second material, means to enable mechanical vibrations of said material loaded with said second material, means to drive said vibrations, means to monitor the frequency of said vibrations, and means to relate said frequency to the mass of said material.

78. Also presented to, but ignored by the Examiner, the Applicant made substantive arguments rebutting the Examiner's position in Applicant's Communication dated 10/22/03 which was a significant and complete response to the Office's Communications of 7/903 and 9/27/03, and in Applicant's Communication dated 11/25/03 which was a significant and complete response to the Office's Communication of 11/5/03, and in Applicant's Communication dated 1/28/04 which was a significant and complete response to the Office's Communication of 1/13/04.

Also presented to the Office was a Petition to the Commissioner dated 1/28/04 which was a significant and complete response to the Office's Communications.

79. With all due respect, many of the cited references followed the present invention. The Examiner has been disingenuous that "loading" was not in the original specification. In fact, it was, as discussed above, and a Petition will be pending. In that light, and notwithstanding the Examiner's allegation, the applicant notes that the application Serial no. 07/ 371,937 --of which the present invention '480 is a continuation-- was filed 06/27/89. The date of Masaaki is March 7, 1992. The date of Zang is Nov. 17, 1998. The date of Steinlechner is March 16, 1999. The date of Wang is March 5th, 1996. Attention is directed to the fact that the present application, '480, precedes all of these; and therefore they are not relevant. Nonetheless, for argument's sake, and to demonstrate error in the Examiner's allegations, each will be discussed in detail.

80. The Examiner states,

*"JP-06-018683 discloses the applicant's claims except for the laser measurement of the vibration frequency of the cathode. Anyone of Wang et al., Steiniecher et al., or Zang et al. disclose a laser vibrometer for remotely measuring the vibration frequency of an object. ....Applicant arguments traversing the use of Wang, Steiniechner or Zang to reject claims 8-20 have been fully considered but they are not persuasive. Applicant has not shown that the references do not teach what the examiner has stated they teach, nor, has the applicant shown that the examiner's reasoning for and manner of combining the teachings of the references is improper or invalid."*

**THE TRUTH - The Examiner Has Been Substantively Unresponsive, This was Discussed Previously**

The Examiner has been unresponsive to Applicant's arguments even though they were fully discussed in significant detail in the previous Communication from the Applicant to the Examiner on pages 33 through 45. For example, in said Communication, the Applicant took the time to respond to the Examiner and wrote the following comments.

**"Wang, Steiniecher, Zang, or JP-06-018683 DOES NOT disclose the applicant's claims except for the laser measurement of the vibration frequency of the cathode. The Examiner has ignored that in the present invention, additional techniques are used and features exist, and unlike Wang, Steiniecher, Zang, or JP-06-018683. The invention at issue in this case, '480, is claimed by Claims 1-20, and is generally speaking a vibrating electrode, composed of a metal such as palladium which has internal filling ("loading") with hydrogen, which is monitored for its natural frequency to reveal information about the loading, *in situ*, and non-invasively. Wang, Steiniecher, Zang, or JP-06-018683 includes none of the features of the present invention. Zang (5,836,439) is a heterodyned self mixing laser**

diode vibrometer. Zang measures remote vibration by Doppler measurement. Zang uses a frequency shifting element (6), a lens (8), a frequency modulated demodulator (31) and an impedance amplifier (5). Zang also requires an acoustic-optic demodulator (25) and a beam dump (56). Zang combines an external two path frequency shifting technique with a heterodyned detection. The date of Zang is Nov. 17, 1998. The applicant notes that the application Serial no. 07/ 371,937 --of which the present invention '480 is a continuation -- was filed 06/27/89 which is prior to Zang. In Zang there is no loading. Furthermore, Zang does not measure loading. Steinlechner (5,883,715) is a laser vibrometer for vibration measurements. Steinlechner uses a polarization beam splitter (3), lens (2), two quarter wave plates (6 and 7), and an optical detour (13) or an arm of an interferometer (13). In Steinlechner, the optical beam is reflected by the object, superimposed as an interference signal, and the two reflected beams sent to electronic equipment (10). A current modulator (11) is used. The date of Steinlechner is March 16,1999. The applicant notes that the application Serial no. 07/ 371,937 --of which the present invention '480 is a continuation -- was filed 06/27/89 which is prior to Steinlechner. In Steinlechner there is no loading. Furthermore, Steinlechner does not measure loading. Wang (5,495,767) is a laser vibrometer. Wang uses a digitizer, two optical sensors, a digital signal, and a flip-flop circuit. Wang uses a series of splitters, polarizers, and other elements to measure rate at which a target vibrates. The date of Wang is March 5th, 1996. The applicant notes that the application Serial no. 07/ 371,937 --of which the present invention '480 is a continuation -- was filed 06/27/89 which is prior to Wang. In Wang there is no loading. Furthermore, Wang does not measure loading. Where in Wang, Steiniecher, Zang, or JP-06-018683 is the vibrational cathode of the present invention used to measure loading? It is shown in Figures 1,2,3, and 4 of the original specification of the above-entitled invention. It is not in Wang, Steiniecher, Zang, or JP-06-018683."

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. The Examiner did not cite Applicant's arguments, nor did the Examiner discuss Applicant's arguments, nor did the Examiner rebut Applicant's arguments. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. The Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response. Specifically, the Applicant hereby requests to know the scientific basis, or any basis which allows the Examiner to dismiss the Argument that,

"Where in Wang, Steiniecher, Zang, or JP-06-018683 is the vibrational cathode of the present invention used to measure loading? It is shown in Figures 1,2,3, and 4 of the original specification of the above-entitled invention."

81. Also ignored by the Examiner is the following questions by the Applicant, "Where in Wang, Steiniecher, Zang, or JP-06-018683 is the optical interrogating beam or other method to investigate the frequency of the vibrational cathode to determine loading? It is shown in Figures 1, 2 and 3 of the original specification of the above-entitled invention. They are not in Wang, Steiniecher, Zang, or JP-06-018683.

Where in Wang, Steiniecher, Zang, or JP-06-018683 is the optical lenses and/or beam splitters (labeled as number 19), or the detector subsystem, containing the optical detectors (e.g. a phototransistor (labeled as number 20), or the event detector (e.g. Schmidt trigger) to detect transitions (labeled as number 21), or the frequency counter (labeled as number 22) to investigate the frequency of the vibrational cathode to determine loading? They are shown in Figures 1,2 and 3 of the original specification of the above-entitled invention. They are not in Wang, Steiniecher, Zang, or JP-06-018683.

Where in Wang, Steiniecher, Zang, or JP-06-018683 is the lower large mass (labeled as number 11), or the "springy" material to alter the resonant frequency of the vibrating cathode (number 13), or the large mass (labeled as number 14) located outside of the reaction cell? They are not in Wang, Steiniecher, Zang, or JP-06-018683.

Where in Wang, Steiniecher, Zang, or JP-06-018683 is the modified cathode (labeled as number 1) with two sites on said cathode where platinum wires are attached (labeled as number 71 and 72 in Figure 5) which are used to create said intraelectrode additional electric field? Where in Wang, Steiniecher, Zang, or JP-06-018683 is the additional electric field internal to the loaded cathode, which in the present application is clearly shown in figure 5? They are not in Wang, Steiniecher, Zang, or JP-06-018683.

Where are these features in Wang, Steiniecher, Zang, or JP-06-018683 like the Examiner falsely purports? None of these are present in Wang, Steiniecher, Zang, or JP-06-018683."

[from Applicant's previous Communication to the Examiner]

Attention is now also directed to the fact that the questions in Applicant's Communication have also been ignored by the Examiner. The Commissioner, and Court, should note that the Examiner did not cite Applicant's arguments, nor did the Examiner discuss Applicant's arguments, nor did the Examiner rebut Applicant's arguments. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. The Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response. Specifically, the Applicant hereby requests to know the scientific basis, or any basis which allows the Examiner to dismiss the Arguments above.

82. The Examiner states,

*"JP-06-018683 discloses an oscillating drive that facilitates fine-tuning of frequency of vibration. Knowledge of such frequency is necessary, e.g., to facilitate repeatability of operating conditions and results. Any one of the secondary references can provide the teaching for measurement of said frequency.*

*Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made ~to modify the apparatus, as disclosed by JP-06018683, by the teaching of any one of Wang et al., Steinlecher et al., or Zang et al. to include a laser vibrometer to gain the advantages thereof (i.e., precise frequency information), because such modification is no more than the use of well known expedient for measuring vibration frequency within the art."*

**THE TRUTH - The Examiner Has Been Substantively Unresponsive,  
This was Discussed Previously**

The Examiner has been unresponsive to Applicant's arguments even though they were fully discussed in significant detail in the previous Communication from the Applicant to the Examiner on pages 35 through 58. For example, in said Communication, the Applicant took the time to respond to the Examiner and wrote the following comments and questions.

**"47. .. The Examiner has ignored that in the present invention, additional techniques are used and features exist, and unlike Wang, Steiniecher, Zang, or JP-06-018683. Third, Wang, Steiniecher, Zang, and JP-06-018683 do not include the important features of the present invention. Where in Wang, Steiniecher, Zang, or JP-06-018683 is the vibrational cathode of the present invention used to measure loading? It is shown in Figures 1,2,3, and 4 of the original specification of the above-entitled invention. It is not in Wang, Steiniecher, Zang, or JP-06-018683. Where in Wang, Steiniecher, Zang, or JP-06-018683 is the optical interrogating beam or other method to investigate the frequency of the vibrational cathode which measures loading? It is shown in Figures 1, 2 and 3 of the original specification of the above-entitled invention. They are not in Wang, Steiniecher, Zang, or JP-06-018683. Where in JP-06-018683 is the transparent windows (labeled as number 17)? It is shown in Figures 1, 2 and 3 of the original specification of the above-entitled invention. They are not in Wang, Steiniecher, Zang, or JP-06-018683. Where in Wang, Steiniecher, Zang, or JP-06-018683 is the event detector (e.g. Schmidt trigger) to detect transitions (labeled as number 21), or the frequency counter (labeled as number 22)? They are in the original specification of the above-entitled invention. They are not in Wang, Steiniecher, Zang, or JP-06-018683. Where in Wang, Steiniecher, Zang, or JP-06-018683 is the lower large mass (labeled as number 11), or the "springy" material to alter the resonant frequency of the vibrating cathode (number 13), or the large mass (labeled as number 14) located outside of the reaction cell? They are not in Wang, Steiniecher, Zang, or JP-06-018683. Where in Wang, Steiniecher, Zang, or**

JP-06-018683 is the modified cathode (labeled as number 1) with two sites on said cathode where platinum wires are attached (labeled as number 71 and 72 in Figure 5) which are used to create said intraelectrode additional electric field? Where in Wang, Steiniecher, Zang, or JP-06-018683 is the additional electric field internal to the loaded cathode, which in the present application is clearly shown in figure 5? They are not in Wang, Steiniecher, Zang, or JP-06-018683. Where in Wang, Steiniecher, Zang, or JP-06-018683 is the teaching of controlling a volume within the loaded cathode using an additional electric field and an orthogonal applied magnetic field intensity as taught in the present invention? Where in Wang, Steiniecher, Zang, or JP-06-018683 is the applied magnetic field intensity orthogonal to the additional applied electric field? They are not in Wang, Steiniecher, Zang, or JP-06-018683. Where are these features in Wang, Steiniecher, Zang, or JP-06-018683 like the Examiner falsely purports? None of these are present in Wang, Steiniecher, Zang, or JP-06-018683."

[from Applicant's previous Communication to the Examiner]

Attention is now also directed to the fact that the questions in Applicant's Communication have also been ignored by the Examiner. The Commissioner, and Court, should note that the Examiner did not cite Applicant's arguments, nor did the Examiner discuss Applicant's arguments, nor did the Examiner rebut Applicant's arguments. The Examiner was requested to answer and respond with specificity. Therefore, given the above, the Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response. Specifically, the Applicant hereby requests to know the scientific basis, or any basis which allows the Examiner to dismiss these arguments.

83. Also ignored by the Examiner is the following by the Applicant,

48. The Examiner has ignored the fact that the purposes and result are different. Masaak i (06-018683) is a vibrating electrode to have "expanded the reaction area". Masaaki resonates the electrode to increase the surface area. In Masaaki, there is no discussion of loading, and no measurement of loading. Furthermore, in Masaaki, there is no measurement of frequency change of the vibrating electrode from loading, and no change in the frequency of the vibration. Zang (5,836,439) is a heterodynied self mixing laser diode vibrometer. Zang measures remote vibration by Doppler measurement. Zang uses a frequency shifting element (6), a lens (8), a frequency modulated demodulator (31) and an impedance amplifier (5). Zang also requires an acoustic-optic demodulator (25) and a beam dump (56). Zang combines an external two path frequency shifting technique with a heterodynied detection. In Zang there is no loading. Furthermore, Zang does not measure loading. Steinlechner (5,883,715) is a laser vibrometer for vibration measurements. Steinlechner uses a polarization beam splitter (3), lens (2), two quarter wave plates (6 and 7), and an optical detour (13) or an arm of an

interferometer (13). In Steinlechner, the optical beam is reflected by the object, superimposed as an interference signal, and the two reflected beams sent to electronic equipment (10). A current modulator (11) is used. In Steinlechner there is no loading. Furthermore, Steinlechner does not measure loading. Wang (5,495,767) is a laser vibrometer. Wang uses a digitizer, two optical sensors, a digital signal, and a flip-flop circuit. Wang uses a series of splitters, polarizers, and other elements to measure rate at which a target vibrates. In Wang there is no loading. Furthermore, Wang does not measure loading. In summary, it is clear that the material of Applicant's invention, '480, does not read on.... the other cited art, or any combination thereof, as the Examiner suggests.

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. The Commissioner, and Court, should note that the Examiner did not cite Applicant's arguments, nor did the Examiner discuss Applicant's arguments, nor did the Examiner rebut Applicant's arguments.

Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. Because the Examiner was requested to answer and respond with specificity, the Examiner has apparently ignored the Office rules, and expectations of reasonable people, and has defied the laws and regulations arising from the US Constitution which led to the creation of the Patent Office. Therefore, given the above, the Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response.

84. Also ignored by the Examiner is the following by the Applicant citing Higley v. Brenner,

**"49. The material of Applicant's invention, '480, does not read on ... Wang, Steinlecher, Zang, JP-06-01868, or the other cited art, as the Examiner suggests (*supra*). Furthermore, the Examiner's use of the combinations including ... JP 06-018683 in view of any one of Wang et al. (U.S. 5,495,767), Steinlecher et al. (U.S. 5,883,715) or Zang et al. (U.S. 5,838,439) is improper because of any one of the following are sufficient reasons.**

None of the cited references, ...JP 06-018683, Wang et al. (U.S. 5,495,767), Steinlecher et al. (U.S. 5,883,715) or Zang et al. (U.S. 5,838,439) suggests, alludes to, or teaches the precise structure as defined by Claims 1-20. As said in *Ex parte Fleischmann*, 157 USPQ 155, 156) Bd. of Appeals 1967): 'While as an abstract proposition it might be possible to select features from the secondary references, as the examiner has done, and mechanically combine them with the (other citation) to arrive at appellant's claimed combination, we find absolutely no basis for making such combination neither disclosed nor suggested in the patents relied on.'

On the matter of combining references under Section 103, no better expression of the law is found than that in *Higley v. Brenner*, Cmr. Pats., 155 USPQ 481, 484 (CADC 1967): 'The obviousness question here revolves around the Patent Office's combining prior references. Reliance may properly be placed on such a combination to negative patentability where the applicant's subject matter is suggested or 'taught' by the prior references. Application of Van Deventer, 223 F.2d 274, 276 106 USPQ 121, 123 (CCPA 1955); Application of Demarche, 219 F.2d 952, 956, 105 USPQ 65, 69 (CCPA 1955).' 'The test of obviousness, however, must be applied as of the time of the invention and not retrospectively as of the time of the suit. Many things may seem obvious after they have been made and for this reason courts should guard against slipping into the use of hindsight'.

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. The Examiner did not cite Applicant's arguments, nor did the Examiner discuss Applicant's arguments, nor did the Examiner rebut Applicant's arguments. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. The Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response.

85. Also ignored by the Examiner is the following by the Applicant citing In re Duva,

"Where is the method of the claims taught in the cited references? How were all portions of the claims considered in determining obviousness? With respect to evaluation of claims under 35 U.S.C. 103, 'every portion of the ... claims must be considered in determining ... obviousness' [emphasis added; In re Duva, 156 USPQ 90, 94 (CCPA 1967)]. The Court, in reversing the Office in In re Kuderna and Phillips, 165 USPQ 575, 578-(CCPA 1970), referred to the 'sum of the relevant teaching in the art,' pointing out that the Office is not allowed to 'view ... first one and then another of isolated teachings' when determining that 'the subject matter as a whole would have been obvious at the time the invention was made', as required by 35 U.S.C. 103.

Does Wang et al. (U.S. 5,495,767), Steinlecher et al. (U.S. 5,883,715) or Zang et al. (U.S. 5,838,439) describe a method to reveal information about the loading, *in situ*, and non-invasively using a vibrating electrode, composed of a metal such as palladium which has internal filling ("loading") with hydrogen, which is monitored for its natural frequency? No."

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. Attention is now also directed to the fact that the questions in Applicant's Communication have also been ignored by the Examiner. Because the Examiner was requested to answer and respond with specificity, the Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response.

86. Also ignored by the Examiner is the following by the Applicant citing In re Shuman and Meinhardt,

"50. Particularly pertinent is In re Shuman and Meinhardt, 150 USPQ 54, 57 (CCPA 1966) wherein the court said:

'References are evaluated by ascertaining the facts fairly disclosed therein as a whole. It is impermissible to first ascertain ... what appellants did and then view the prior art in such a manner as to select from the random facts of that art only those which may be modified and the utilized to reconstruct appellant's invention from such prior art. '[Emphasis added.]

Does Wang et al. (U.S. 5,495,767), Steinlecher et al. (U.S. 5,883,715) or Zang et al. (U.S. 5,838,439)s function, and operate, as the Examiner purports? No."

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. It is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. The Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response. Specifically, the Applicant hereby requests to know the scientific basis, or any basis which allows the Examiner to dismiss the Argument.

87. Also ignored by the Examiner is the following by the Applicant citing In re Wilson and In re Benson and Tabbott,

"**It is basic that the claims define the invention.** The courts have said that: 'All words in a claim must be considered in judging the patentability of that claim against the prior art ... ', In re Wilson, 165 USPQ 494 (CCPA 1970). The terms in the claims 'should be given the meaning they would have 'to one of ordinary skill in the pertinent art when read in the light of and consistently with the specification ...', In re Benson and Tabbott, 169 USPQ 548, 552 (CCPA 1971).

The Court of Custom and Patent Appeals in In re Langer and Haynes, 175 USPQ 169, 171 (CCPA 1972) and as to a rejection based upon prior art teachings, said: 'This court has said that '(a)ll of the disclosures in a reference must be evaluated for what they fairly teach (emphasis added) one of the ordinary skill in the art.'

The figures and claims of JP 06-018683, Wang et al. (U.S. 5,495,767), Steinlecher et al. (U.S. 5,883,715) or Zang et al. (U.S. 5,838,439), are intended to, and do, serve a different purpose than does the figures and claims in the present invention, and each adds nothing of substance to the other. None of the references suggests, alludes to, or teaches a structure as defined by the claims of this invention or the Figures therein.

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. The Examiner did not cite Applicant's arguments, nor did the Examiner discuss Applicant's arguments, nor did the Examiner rebut Applicant's arguments. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. The Examiner was requested to answer and respond with specificity, the Examiner has apparently ignored the Office rules, and expectations of reasonable people. Therefore, given the above, the Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive

coherent response. Specifically, the Applicant hereby requests to know the scientific basis, or any basis which allows the Examiner to dismiss the Argument.

88. Also ignored by the Examiner is the following by the Applicant,  
**"51. There is no suggestion in the references themselves that they be combined, or could be combined. Where was the suggestion of the desirability of the modification? Indeed, neither of the references suggests, alludes to, or teaches a structure as defined by the claims of this invention, and as should be apparent? The need for the prior art references themselves to suggest that they can be combined is well known. Therefore, of what relevance then is ... JP 06-018683, Wang et al. (U.S. 5,495,767), Steinlecher et al. (U.S. 5,883,715) or Zang et al. (U.S. 5,838,439)?"**

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that this has been ignored by the Examiner. Thus, it is impossible to tell how the Examiner weighed Applicant's arguments. There is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. The Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response. Specifically, the Applicant hereby requests to know the scientific basis, or any basis which allows the Examiner to dismiss the Argument that,

**"Where was the suggestion of the desirability of the modification?"**

89. Also ignored by the Examiner is the following by the Applicant citing In re Mercier and In re Sernaker,

**"On the matter of applying references to claimed subject matter [eg. cf. In re Mercier, 185 U.S.P.Q. 774, (CCPA, 1975)]:** 'These and other questions arise because the board's approach fails to recognize that all of the relevant teachings of the cited references must be considered in determining what they fairly teach to one having ordinary skill in the art. \*

\* \* \* 'The relevant portions of a reference include not only those teachings which would suggest particular aspects of an invention to one having ordinary skill in the art, but also those teachings which would lead such a person away from the cited invention.'

As was stated in In re Sernaker, 217 U.S.P.Q. 1,6 (CAPC 1983)]: '(P)rior art references in combination do not make an invention obvious unless something in the prior art references would suggest that advantage to be derived from combining their teachings.'

The suggestion to combine the references should come from the prior art, rather than from applicant. As was forcefully stated in Orthopedic Equipment Co. Inc. v, United States, 217 U.S.P.W. 193, 199 (CAPC 1983): 'It is wrong to use the patent in suit [here the patent application] as a guide through the maze of prior art references, combining the right references in the right way to achieve the result of the claims in suit [here the claims at issue]. Monday morning quarterbacking is quite improper when responding the question of nonobviousness in a court of law [here the Office].'

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. The Applicant hereby requests to know the scientific basis, or any basis which allows the Examiner to dismiss this Argument.

90. Also ignored by the Examiner is the following by the Applicant citing In re Umbrecht and In re Noznik,

**"There is no teaching in the references that would support the combination the Office uses to reject the claims. The applicable law will now be noted in greater detail. In this case, the Examiner uses JP 06-018683 and then misrepresents Wang et al. (U.S. 5,495,767), Steinlecher et al. (U.S. 5,883,715), Zang et al. (U.S. 5,838,439), purporting them to be the present invention. But they are not. Furthermore, in order to combine references there must be a 'suggestion of the desirability' of the combination, In re Noznik, Tatter and Obenauf, 178 USPQ 43, 45 (CCPA 1973). That holding is the reason why the origin of the combination must be given weight -- not only the possibility of such combination; see the reference to 'motivation or reason in Chicago Rawhide {\*\*} which focuses quite clearly on the rationale of recent decisions of the Court of Appeals**

for the Federal Circuit (CAFC) on the issue of obviousness, as discussed, for example, in *In re Gordon*, 221 USPQ 1125 (Fed. Cir. 1984), wherein the court said at page 1127: 'The mere fact that the prior art could be so modified should not have made the modification obvious unless the prior art suggested the desirability of the modification. [Emphasis added] [{\*\*} Ex parte Chicago Rawhide Manufacturing Co., 223 USPQ 351, 353 (Bd. of App. 1984)]

53. There would be no reason for one skilled in the art to combine JP 06-018683 and either Wang et al. (U.S. 5,495,767), Steinlecher et al. (U.S. 5,883,715) or Zang et al. (U.S. 5,838,439) and then twist, blend, and confabulate, their uses, function, operation, purposes, and control systems to purportedly obtain the present invention as the Examiner has done. Furthermore, there is no suggestion in the references themselves that they be combined, or could be combined that way. Thus the applicant submits that any combination of JP 06-018683, Wang et al. (U.S. 5,495,767), Steinlecher et al. (U.S. 5,883,715) or Zang et al. (U.S. 5,838,439) is an improper one, absent any showing in the references themselves that they can or should be so combined in the twisted manner in which the Examiner suggests by removing words from their context in the cited nonrelevant art. Where was the suggestion of the desirability and modification suggested by the Examiner? Indeed, what the Office has done here is to 'pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art', *In re Umbrech*, 160 USPQ 15, 19 (CCPA 1968)."

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. Attention is now also directed to the fact that the questions in Applicant's Communication have also been ignored by the Examiner. It is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. The Applicant hereby requests to know the scientific basis, or any basis which allows the Examiner to dismiss this Argument.

91. Also ignored by the Examiner is the following by the Applicant citing "unexpected results, assumed insolubility, unrecognized problem, and crowded art",

**"54. The Applicant respectfully notes to the examiner that there exist additional reasons which militate in favor of unobviousness.**

**Unexpected Results:** Up to now, insofar as the Applicant is aware, the prior art cited by the examiner has virtually ignored the importance of determining the activity of a sample into which isotopic fuel is loaded. The device described within the above-entitled application is thus both superior and unsuggested. The means to improve loading is a *sine qua non* for the desired fusion reactions involving isotopic fuel in a material, and is therefore critical, and thus unobvious.

**Assumed Insolubility.** Up to now those skilled in the art have thought, or have found, that both obtaining fusion of this type, and the specific problem solved by this invention, were insoluble. The failures of much prior art, including but not limited to those cited by the examiner, indicates that a solution of these problems were, therefore, not obvious. This general lack of an obvious solution has occurred both generally in fusion, and specifically in the method to improve loading, as discussed in the above-entitled application.

**Unrecognized Problem:** Up to now, insofar as Applicant is aware, the art contained no indication of either how to succeed with "cold fusion" or the other uses of the present invention. The discovery of how to solve this problem, as well as the concomitant ability to improve loading, is submitted therefore to be an important one, and therefore worthy of patent protection.

**Crowded Art:** The present invention is in a crowded art. Attention is drawn, for example, to the plethora of references cited by the examiner in the brief period of time specified by the examiner. It is well recognized that in a crowded art, even a small step forward is worthy of patent protection. While the present invention is submitted to be far more than a small one, nevertheless this factor militates in Applicant's favor."

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said arguments in Applicant's Communication have simply been ignored by the Examiner. The Examiner did not cite Applicant's arguments, nor did the Examiner discuss Applicant's arguments, nor did the Examiner rebut Applicant's arguments. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. Therefore, given the above, the Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive

coherent response. Specifically, the Applicant hereby requests to know the scientific basis, or any basis which allows the Examiner to dismiss the Argument that,

**" the prior art cited by the examiner has virtually ignored the importance of determining the activity of a sample into which isotopic fuel is loaded. The device described within the above-entitled application is thus both superior and unsuggested"**

## LAW

92. Appellant asks the Board:

**Where are these features, methods, and purpose, in the cited references like the Examiner disingenuously purports despite being shown his error?**

The original specification teaches the best mode contemplated by the inventor of carrying out his invention.

Where in the cited references is the vibrational cathode of the present invention? It is shown in Figures 1,2,3, and 4 of the original specification of the above-entitled invention. It is not in the cited references.

Where in Wang, Steiniecher, Zang, or JP-06-018683 is the vibrational cathode of the present invention used to measure loading as is shown in the Figures of the original specification of the above-entitled invention. It is not in Wang, Steiniecher, Zang, or JP-06-018683.

Where in Wang, Steiniecher, Zang, or JP-06-018683 is the optical beam or other method to investigate said vibrational cathode of the present invention? It is shown in Figures 1 and 2 of the original specification of the above-entitled invention. It is not in Wang, Steiniecher, Zang, or JP-06-018683.

93. The Court, in reversing the Office in *In re Kuderna and Phillips*, 165 USPQ 575, 578- (CCPA 1970), referred to the 'sum of the relevant teaching in the art,' pointing out that the Office is not allowed to 'view ... first one and then another of isolated teachings' when determining that 'the subject matter as a whole would have been obvious at the time the invention was made', as required by 35 U.S.C. 103. Particularly pertinent is *In re Shuman and Meinhardt*, 150 USPQ 54, 57 (CCPA 1966) wherein the court said:

**'References are evaluated by ascertaining the facts fairly disclosed therein as a whole. It is impermissible to first ascertain It is factually what appellants did and then view the prior art in such a manner as to select from the random facts**

of that art only those which may be modified and the utilized to reconstruct appellant's invention from such prior art. [Emphasis added.]

It is basic that the claims define the invention. The courts have said that:

'All words in a claim must be considered in judging the patentability of that claim against the prior art ... ', In re Wilson, 165 USPQ 494 (CCPA 1970). The terms in the claims 'should be given the meaning they would have 'to one of ordinary skill in the pertinent art when read in the light of and consistently with the specification ...', In re Benson and Tabbott, 169 USPQ 548, 552 (CCPA 1971).

94. The Court of Custom and Patent Appeals in In re Langer and Haynes, 175 USPQ 169, 171 (CCPA 1972) and as to a rejection based upon prior art teachings, said:

'This court has said that '(a)ll of the disclosures in a reference must be evaluated for what they fairly teach (emphasis added) one of the ordinary skill in the art.'

Where is the method of the claims taught in the references?

How were all portions of the claims considered in determining obviousness?

**Unsuggested Combination:**

95. There is no suggestion in the references themselves that they be combined, or could be combined.

Where was the suggestion of the desirability of the modification? Indeed, neither of the references suggests, alludes to, or teaches a structure as defined by the claims of this invention, and as should be apparent?

The need for the prior art references themselves to suggest that they can be combined is well known. Therefore, of what relevance then is Wang, Steiniecher, Zang, or JP-06-018683?

On the matter of applying references to claimed subject matter [e.g.. cf. In re Mercier, 185 U.S.P.Q. 774, (CCPA, 1975)]:

'These and other questions arise because the board's approach fails to recognize that all of the relevant teachings of the cited references must be considered in determining what they fairly teach to one having ordinary skill in the art. \* \* \* 'The relevant portions of a reference include not only those teachings which would suggest particular aspects of an invention to one having ordinary skill in the art, but also those teachings which would lead such a person away from the cited invention.'

As was stated in In re Sernaker, 217 U.S.P.Q. 1,6 (CAPC 1983)]:

'(P)rior art references in combination do not make an invention obvious unless something in the prior art references would suggest that advantage to be derived from combining their teachings.'

The suggestion to combine the references should come from the prior art, rather than from applicant. As was forcefully stated in Orthopedic Equipment Co. Inc. v. United States, 217 U.S.P.W. 193, 199 (CAPC 1983):

'It is wrong to use the patent in suit [here the patent application] as a guide through the maze of prior art references, combining the right references in the right way to achieve the result of the claims in suit [here the claims at issue]. Monday morning quarterbacking is quite improper when responding the question of nonobviousness in a court of law [here the Office].'

Indeed, what the Office has done here is to

'pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art'

[In re Umbrecht, 160 USPQ 15, 19 (CCPA 1968)].

96. There is no teaching in the references that would support the combination of Wang, Steiniecher, Zang, or JP-06-018683 which the Office uses to reject the claims. The applicable law will now be noted in greater detail.

**NOTA BENE:** The Examiner is incorrect. In order to combine references there must be a 'suggestion of the desirability' of the combination, In re Noznik, Tatter and Obenauf, 178 USPQ 43, 45 (CCPA 1973). That holding is the reason why the origin of the combination must be given weight -- not only the possibility of such combination; see the reference to 'motivation or reason in Chicago Rawhide {\*\*}' which focuses quite clearly on the rationale of recent decisions of the Court of Appeals for the Federal Circuit (CAFC) on the issue of obviousness, as discussed, for example, in In re Gordon, 221 USPQ 1125 (Fed. Cir. 1984), wherein the court said at page 1127:

'The mere fact that the prior art could be so modified should not have made the modification obvious unless the prior art suggested the desirability of the modification. [Emphasis added]

[{\*\*} Ex parte Chicago Rawhide Manufacturing Co., 223 USPQ 351, 353 (Bd. of App. 1984)]

There would be no reason for one skilled in the art to combine such disparate references such as Wang, Steiniecher, Zang, or JP-06-018683 to purportedly obtain the present invention as the Examiner has done. Furthermore, there is no suggestion in the references themselves that they be combined, or could be combined that way. Thus the applicant submits that any combination of Wang, Steiniecher, Zang, or JP-06-018683 is an improper one, absent any showing in the references themselves that they can or should be so combined.

Where was the suggestion of the desirability of the modification? Indeed, what the Office has done here is to 'pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art', In re Umbrechrt, 160 USPQ 15, 19 (CCPA 1968). There is no teaching in the references that would support the combination the Office uses to reject Claims 1 through 20, as should be apparent to the Office.

97. Thus the applicant submits that any combination of Wang, Steiniecher, Zang, or JP-06-018683 or the other art is an improper one, absent any showing in the references themselves that they can or should be so combined.

None of the references suggests, alludes to, or teaches the structure as defined by Claims 1 through 20. As said in Ex parte Fleischmann, 157 USPQ 155, 156) Bd. of Appeals 1967):

**'While as an abstract proposition it might be possible to select features from the secondary references, as the examiner has done, and mechanically combine them with the (other citation) to arrive at appellant's claimed combination, we find absolutely no basis for making such combination neither disclosed nor suggested in the patents relied on.'**

On the matter of combining references under section 103, no better expression of the law is found then that in Higley v. Brenner, Cmr. Pats., 155 USPQ 481, 484 (CADC 1967):

**'The obviousness question here revolves around the Patent Office's combining prior references. Reliance may properly be placed on such a combination to negative patentability where the applicant's subject matter is suggested or 'taught' by the prior references. Application of Van Deventer, 223 F.2d 274, 276 106 USPQ 121, 123 (CCPA 1955); Application of Demarche, 219 F.2d 952, 956, 105 USPQ 65, 69 (CCPA 1955).'**

**'The test of obviousness, however, must be applied as of the time of the invention and not retrospectively as of the time of the suit. Many things may seem obvious after they have been made and for this reason courts should guard against slipping into the use of hindsight'.**

98. The materials used in Wang, Steiniecher, Zang, or JP-06-018683 do not function as the active material used in the present invention.

Simply put, the figures and claims of Wang, Steiniecher, Zang, or JP-06-018683 are intended to, and do, serve a different purpose than does the structure defined by claims herein. Thus the applicant submits that any combination of Wang, Steiniecher, Zang, or JP-06-018683 is an improper one, absent any showing in the references themselves that they can or should be so combined.

**As is saliently clear, there has not been a fair standard of review.**

The Examiner has rejected the claims on the basis of 'random facts' in the art cited and has modified those random facts in a manner without 'motivation or reason' derived from those random facts [Chicago-Rawhide]. However, even picking and choosing bits and pieces of the various references as the Office has done here, does not lead one to the invention as defined by Claims 1 through 20.

**Unexpected Results:**

99. Up to now, insofar as the applicant is aware, the prior art cited by the examiner has virtually ignored how to measure the amount of isotopic fuel, which is loaded into a material. The device described within the above-entitled application and thus both superior, unsuggested, and unobvious.

100. In summary, Applicant submits that the above-recited novel features in the independent claims, and hence in all claims, provide new and unexpected results. The Appellant has explained in detail (*supra*) how the cited art are different and therefore produce a different result from the present invention. Applicant has given lists of additional critical features and components which distinguish Applicant's invention to operatively function in a different manner to the cited art.

The subject matter sought to be patented by claims 1-20, a method to reveal information about the loading, *in situ*, and non-invasively using a vibrating electrode, composed of a metal such as palladium which has internal filling ("loading") with hydrogen, which is monitored for its natural frequency, was not obvious at the time the invention was made to a person having ordinary skill in the art for which the claimed subject matter pertains [35 U.S.C. 103]. The Office has misread the claims of the present application under 35 U.S.C. §103. The Independent Claims are separately patentable with respect to 35 USC 103 and do not stand or fall together because they are materially distinct, are not unduly

multiplied, and because all independent claims have separate limitations, as recited in the claims. Furthermore, they are separately patentable with respect to 35 USC 103 and do not stand or fall together because multiple claims are required because the invention described by the original specification of the above-entitled application is very complex. In addition, said Claims are separately patentable and do not stand or fall together because all of the claims are distinguished from the cited references and prior art with respect to 35 USC 103. Therefore, it should be considered unobvious, making the claims patentable under Section 103. None of the prior art, nor any combination of such, provides this or these new and unexpected results. The present application is a novel and nonobvious.

Therefore, in accordance with the foregoing arguments, Applicant has fully conformed with the requirements of section 103 of the Patent Act; and further, that Claims 1 through 20 of the present invention clearly define patentable subject matter. These claims are patentable over the cited references because the claims recite novel structure and thus are distinguished physically over every reference [Sec. 102], and the physical distinctions effect new and unexpected results, thereby indicating that the physical distinction is simply not obvious [Sec. 103]. Given the above, reconsideration with respect to Sec. 103 of Claims 1-20 is respectfully and reasonably requested by the Applicant.

**ARGUMENT - Claim Rejections under 35 USC 101 REJECTION**

101. Claims 1-20 are rejected under 35 U.S.C. 101. For said rejection under 35 U.S.C. 101, the Applicant fully and completely specified the errors in the rejection. Applicant also submitted evidence in a timely fashion which was ignored by the Office

102. The appealed claims do not stand or fall together. Claims 1, 8, and 17 are separately patentable and do not stand or fall together because they are materially distinct with respect to 35 USC 101. Claims 1, 8, and 17 are separately patentable and do not stand or fall together because the claims are not unduly multiplied and have separate limitations, as recited in the claims.

Claim 1 distinguishes and limits the invention to a method, in which a material is electrochemically loaded with second material, to monitor the loading that comprises loading said second material, driving a mechanical vibration of said material loaded with second material, monitoring the frequency of said vibration, and then relating said frequency of said vibration to the mass of said material.

Claim 8 distinguishes and limits the invention to a method of monitoring the loading within said material that comprises loading said second material, mechanically driving said material so as to enable a mechanical vibrations of said material, providing means to produce said vibrations, providing means to detect the frequency of said vibrations, and relating said frequency to the mass of said material.

Claim 17 distinguishes and limits the invention to an apparatus to monitor the loading of a material by a second material which includes in combination means to load said second material, means to enable mechanical vibrations of said material loaded with said second material, means to drive said vibrations, means to monitor the frequency of said vibrations, and means to relate said frequency to the mass of said material.

103. Also presented to, but ignored by the Examiner, the Applicant made substantive arguments rebutting the Examiner's position in Applicant's Communication dated 10/22/03 which was a significant and complete response to the Office's Communications of 7/903 and 9/27/03, and in Applicant's Communication dated 11/25/03 which was a significant and complete response to the Office's Communication of 11/5/03, and in Applicant's Communication dated 1/28/04 which was a significant and complete response to the Office's Communication of 1/13/04.

Also presented to the Office was a Petition to the Commissioner dated 1/28/04 which was a significant and complete response to the Office's Communications.

104, The invention at issue in this case, claimed by Claims 1-20, has features of great utility.

As the original specification states (page 4, lines 14-18), the present invention has features of great utility for several reasons to those skilled in the art because

**"(p)resent methods to monitor the changes of deuterium loading into palladium (and other metals) are made difficult in that the material must be removed from the reaction chamber, thereby not only stopping the reaction, but also cross-contaminating both the cathode and the laboratory."**

The original specification (page 41, lines 1-3), continues with the teaching of additional reasons why this invention has great utility

**"Deuteron (an isotope of hydrogen) storage devices, fuel cells, and other systems offer the opportunity of improved energy utilization. It is well known that deuterons are soluble in palladium and other metals. Unlike the other metals, palladium has a deuteron solubility that falls rapidly as the temperature rises, while the rate of diffusion increases (Hampel). However, the process is complicated. It must be followed to maximize the likelihood of the desired reactions. .... Accordingly, it is a principal object of the present invention to provide a novel method and system to monitor loading. Specifically, the loading is monitored in situ."**

The original specification teaches (page 7, lines 1-8) and elaborates for those skilled in the art to make and use a vibrational system of great utility to measure loading.

**"The cathode (labeled as number 1) has a variety of positions of which three are shown. These displacements are greatly magnified in Figure 1. For simplicity the reactor (16) is filled to the top. Not shown are the mechanical system which enables said cathode to vibrate between said displacements, or the cover of the reactor."**

**"When this novel cathode does move, it interferes with an optical beam (labeled as number 12 in Figure 1)."**

The original specification teaches (page 7, line 10 through 19), the best mode contemplated by the inventor of carrying out his invention using the optical subsystem (referring to the figures).

**"The optical beam originates from an optical laser contained in an optical irradiator subsystem (labeled as number 30) and is detected electrooptically by an optical detection subsystem (labeled as number 31). The photodetector and associated equipment are not shown in this figure."**

**"The repetitive cutoff of the optical beam occurs due to the physical displacement of the cathode during an oscillation as described herein. These oscillations may occur during the loading of said cathode, or may occur periodically."**

In another embodiment, the original specification teaches specially prepared windows (page 9, lines 13-15) a feature of great utility,

**"... provisions can be made for transparent windows (labeled as number 17) on said reactors. This would be done to permit monitoring of said vibrational cathode."**

The original specification teaches (page 8, lines 16-26, and then on page 12 lines 26-28) features of great utility by describing in detail the components and physical arrangement of subsystems for those skilled in the art the subject matter defined by each of the rejected claims.

**"The optical beam (labeled as number 12) is shown passing directly in front of the cathode. Part of the cathode is hidden in the figure due to the beam. The optical beam is provided by a laser (labeled as number 18), and is directed by appropriate optical lenses and/or beam splitters (labeled as number 19) located in the optical subsystems. Said beam is detected by the detector subsystem, containing the optical detectors (e.g. a phototransistor (labeled as number 20), an event detector (e.g. Schmidt trigger) to detect transitions (labeled as number 21) and a frequency counter (labeled as number 22). The optical subsystems are controlled by the control unit (labeled as number 23)"**

"Because the natural frequency can be counted with a laser beam and photodetector (coupled to a trigger and frequency counter), an accurate in situ determination of frequency is possible."

In another embodiment, as the original specification continues, detailed instructions are taught involving other configurations of great utility to produce the desired result (page 15, lines 25-30),

**"Another monitoring configuration involves using said external magnetic field intensity to align the magnetic moments of the deuterons within said cathode. The application of a suitable radio-frequency power source and the ability to measure the power absorption also enables the cathode to have its intravolumetric deuteron population measured in situ."**

In another embodiment of great utility, the original specification teaches an variation (page 16, lines 1-6),

**"Yet another monitoring configuration involves the use of a second external mass coupled to the above cited large external mass. Forced mechanical vibration of said second external mass will eventually couple phonons to the cathode and thereby cause it to vibrate at its own natural frequency. The monitoring system would be similar to that described above."**

105. The Examiner states,

"5. *Claims 1-20 are rejected under 35 U.S.C. 101 because the claimed invention as disclosed is inoperative and therefore lacks utility. The reasons that the inventions as disclosed are inoperative are the same as the reasons set forth in sections 3 and 4 above and the reasons set forth in sections 3 and 4 above are accordingly incorporated herein.*"

**THE TRUTH - The Examiner Has Been Substantively Unresponsive, This was Discussed Previously**

The Examiner is wrong for several reasons. First, the citations are wrong. Second, the citations made by the examiner are themselves void of reason, precision and substance, as discussed above. Third, the examiner remains substantively unresponsive to Applicant's arguments even though they were fully discussed in significant detail in the previous Communication from the Applicant to the Examiner on pages 91 through 100. For example, in said Communication, the Applicant took the time to respond to the Examiner and wrote the following comments and questions.

To begin, the citations are wrong, and are void of reason. The Examiner refers to #4, but #4 states that "Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention". This is false as discussed above. The Examiner also refers to #3, but #3 states that "Claims 1-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the (invention)." This, too, is false as discussed above.

Even more importantly, the Examiner has been unresponsive to Applicant's arguments even though they were fully discussed in significant detail in the previous Communication from the Applicant to the Examiner on pages 91 through 100. For example, in said Communication, the Applicant took the time to respond to the Examiner and wrote the following comments and questions.

"... the Examiner must consider those skilled-in-the-art who oppose and counter the rejection under 35U.S.C. §101. Third, the Examiner points to out art not involving this Application. However, validation occurs when scientists actually skilled, and working, in the state-of-the-art state it to be so. These are scientists who research and actually write the current scientific technical papers which undergo peer-review, file patent applications, and attend international conferences (which have gone on for thirteen years). They absolutely disagree with the Examiner on this. Fourth, and most importantly, there is reputable evidence of record to indicate the invention has been reduced to the point of providing an operative cold fusion system. Fifth, the Claims clearly define subject

**matter of considerable utility because energy needs dominate, and are critical to the economy."**

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said arguments in Applicant's Communication have simply been ignored by the Examiner. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. Therefore, given the above, the Applicant hereby requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response.

106. The Examiner has been unresponsive to Applicant's arguments citing [M.P.E.P. §2111.01],

**"Utility is a fact question, and proof of utility is sufficient if it meets at least one stated objective. In this case, it does. The Examiner has not followed the Office's own standards of review. The Office's rule [M.P.E.P. §2111.01] requires that**

**"the words of a claim ... must be read as they would be interpreted by those of ordinary skill in the art".**

**Utility is a fact question, and proof of utility is sufficient if it is convincing to one of ordinary skill in the art or if it meets at least one stated objective.**

**"Utility is a fact question, see e.g., Wilden Pump v. Pressed & Welded Products Co, 655 F.2d 984, 988, 213 USPQ 282, 285 (9th Cir. 1981); Nickola v. Peterson, 580 F.2d 898, 911, 198 USPQ 385, 399 (6th Cir. 1978), cert. denied, 440 U.S. 961, 99 S.Ct. 1504, 59 L.Ed.2d 774 (1979)." \*\*\***

**"When a properly claimed invention meets at least one stated objective, utility under 101 is clearly shown. See e.g., Standard Oil Co. (Indiana) v. Montedison, S.P.A., 664 F.2d 356, 375, 212 USPQ 327, 344 (3rd Cir. 1981), cert. denied, 456 U.S. 915, 102 S.Ct. 1769, 72 L.Ed.2d 174 (1982); E.I. du Pont de Nemours & Co. v. Berkley & Co., 620 F.2d 1247, 1258 n. 10, 1260 n. 17, 205 USPQ 1, 8 n. 10, 10 n. 17 (8th Cir. 1980); Krantz and Croix v. Olin, 148 USPQ 659, 661-62 (CCPA 1966); Chisum on Patents, 4.04[4] [1983]."**

**[RAYTHEON COMPANY v. ROPER CORPORATION, U.S.C.A., Federal Circuit, 1983, 724 F.2d 951, 220 USPQ 592]]**

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the relevance of the *Amicus Curiae* Brief of Drs. Edmund Storms [Exhibit "10", 2/21/01], *Amicus Curiae* Brief of Hal Fox [Exhibit "18", 5/8/02], *Amicus Curiae* Brief of Eugene Mallove [Exhibit '20", 5/8/02 ], Declaration of Scott Chubb [Exhibit "15", 8/13/01], Declaration of Hal Fox [Exhibit "16", 5/16/95], Declaration of Mr. Rotegard [Exhibit "13", 5/15/94], Declaration of

Hal Fox [Exhibit "17", 8/14/01], Declaration of Eugene Mallove [Exhibit "19", 5/6/94], and Straus Declaration of [Exhibit "9", 5/22/94] have been ignored even though the affiants have probative value and even though the averments prove utility of the present invention. Applicant's Communication have simply been ignored by the Examiner. Because it is impossible to tell how the Examiner weighed Applicant's arguments, and because there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals, the Applicant hereby requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response.

107. The Examiner has been unresponsive to Applicant's arguments citing In Re Jolles,

"**Proof of utility is sufficient if it is convincing to one of ordinary skill in the art. In re Irons, 52 CCPA 938, 340 F.2d 974, 144 USPQ 351 (1965).**  
**The amount of evidence required depends on the facts of each individual case. In re Gazave, 54 CCPA 1524, 379 F.2d 973, 154 USPQ 92 (1967).**  
**The character and amount of evidence needed may vary, depending on whether the alleged utility appears to accord with or to contravene established scientific principles and beliefs. In re Chilowsky, 43 CCPA 775, 229 F.2d 457, 108 USPQ 321 (1956)."** [In Re Jolles, U.S.C.P.A., 1980. 628 F.2d 1322, 206 USPQ 885]

"**The Declarations demonstrate that the original specification and claims clearly define subject matter of considerable utility. Therefore, the Applicant has fully conformed with, and satisfied, the requirements of §101 of the Patent Act and met at least one (1) stated objective [Standard Oil Co. (Indiana) v. Montedison, S.P.A., 664 F.2d 356, 375, 212 USPQ 327, 344 (3rd Cir. 1981), cert. denied, 456 U.S. 915, 102 S.Ct. 1769, 72 L.Ed.2d 174 (1982); E.I. du Pont de Nemours & Co. v. Berkley & Co., 620 F.2d 1247, 1258 n.10, 1260 n.17, 205 USPQ 1, 8 n.10, 10 n.17 (8th Cir. 1980); Krantz and Croix v. Olin, 148 USPQ 659, 661-62 (CCPA 1966); Chisum on Patents, 4.04[4] [1983]; RAYTHEON COMPANY v. ROPER CORPORATION, U.S.C.A., Federal Circuit, 1983, 724 F.2d 951, 220 USPQ 592]."**

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said arguments in Applicant's Communication have simply been ignored by the Examiner. Because it is impossible to tell how the Examiner weighed Applicant's arguments, and because there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals, the Applicant hereby requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response.

108. The Examiner has been unresponsive to Applicant's arguments citing In re Zurko,

The Examiner has rejected In re Zurko [142 F.3d 1447, 1449, 46 USPQ2d 1691, 1693 (Fed. Cir.), cert. granted, 119 S. Ct. 401 (1998)] which declares that utility is a fact question [RAYTHEON COMPANY v. ROPER CORPORATION, U.S.C.A., Federal Circuit, 1983, 724 F.2d 951, 220 USPQ 592], and one which the Examiner in this case must review for clear error [Cross v. Iizuka, 753 F.2d 1040, 1044 n.7, 224 USPQ 739, 742 n.7 (Fed. Cir. 1985); also In re Zurko].

116. The Examiner has rejected the directive of 1.131 (a)(1) which requires that

"When ... a patent ... is rejected .... on reference ... to a printed publication, the inventor of the subject matter of the rejected claim ... may submit an appropriate oath or declaration to overcome the patent or publication." Unrebutted Declarations have been submitted in this case, and are again submitted, and the Examiner must respond to them substantively [Marino v. Hyatt Corporation; Morrill v. Tong; and Chelebda v. H.E. Fortuna & Brothers Inch].

In re Irons indicates that utility is a fact question [RAYTHEON COMPANY v. ROPER CORPORATION]. The submitted Declarations and the publications (including e.g. McKubre) are relevant as proof of utility. They demonstrate utility and operability at the time of the filing of this patent, and that it was, and is, important and of considerable utility.

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said arguments in Applicant's Communication have simply been ignored by the Examiner. Because it is impossible to tell how the Examiner weighed Applicant's arguments, and because there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals, the Applicant hereby requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response.

109. The Applicant hereby requests to know the scientific basis, or any basis, in the light of the Declarations which allows the Examiner to dismiss the Argument that,

**"Proof of utility is sufficient if it is convincing to one of ordinary skill in the art."**

The Applicant also hereby requests to know the scientific basis, or any basis, in the light of the Declarations which allows the Examiner to dismiss the *Amicus Curiae* Brief of Talbot Chubb [Exhibit "14", 2/22/01], *Amicus Curiae* Brief of Drs. Edmund Storms [Exhibit "10", 2/21/01], Averment 4 in the *Amicus Curiae* Brief of Mr. Rotegard [Exhibit "12", 2/21/01], Pages 4 through 8 in *Amicus Curiae* Brief of Thomas Valone [Exhibit "11", 2/24/01], and pages 2-5 in the Straus Declaration [Exhibit "8", November 27, 1992] have been ignored even though the affiants have probative value and even though the averments prove operability of the present invention.

110. The Examiner has been unresponsive to Applicant's arguments citing In re Ziegler, In re Ferens, Ex parte Porter, In re Morris, In re Oetiker, Ex parte Gray, In re Brana, In re Marzocchi and In re Oetiker.

"The Examiner has rejected In re Ziegler [992 F.2d 1197, 1200, 26 USPQ2d 1600, 1603 (Fed. Cir. 1993)] which requires the Examiner accept Declarations as factual proof of utility.

The Examiner has rejected Marino v. Hyatt Corporation, 793 F.2d 427, 430 (1st Cir. 1986); Morrill v. Tong, 390 Mass. 1207 129 (1983); Chelebda v.H.E. Fortuna & Brothers Inch 609 F.2d 1022 (1st Cir. 1979); Lewis v. Bours, 119 Wn.2d 667, 670, 1992] which require the Examiner to assume that the Declarants' assertions are true.

The Examiner has rejected In re Ferens [417 F.2d 1072, 1074, 163 USPQ 609,611 (CCPA 1969)] which heralds that Applicant's submitted evidence, including Declarations, is sufficient.

The Examiner has rejected Ex parte Porter which requires that Declarations, submitted in response to the Examiner's comments, must be read, examined, and carefully considered.

The Examiner has rejected In re Morris [127 F.3d 1048, 1053-56, 44 USPQ2d 1023, 1027-30 (Fed. Cir. 1997)] which demands that the interpretation of operability and utility is predicated upon that which one who is skilled-in-the-art would reach. The Examiner must given the claims their broadest reasonable interpretation consistent with that which those skilled-in-the-art would reach.

The Examiner has rejected In re Oetiker [977 F.2d at 1445, 24 USPQ2d at 1444] which requires the Examiner substantively and fully respond to the probative witnesses, because Applicant has undertaken the full burden coming forward.

The Examiner has rejected Ex parte Gray [10 USPQ2d 1922, 1928 (Bd. Pat. App. & Inter. 1989)] which allows for Applicant's submitted expert testimony regarding operability and utility, beyond the detailed specification. The Examiner must give substantial weight to said Declarations about what they said about this invention compared to the Examiner's art regarding the work of others.

The Examiner has rejected In re Brana, 51 F.3d at 1566, 34 USPQ2d at 1441] which indicates Applicant's actions hereby meet the "burden shift ...

to provide rebuttal evidence sufficient to convince such a person of the invention's asserted utility".

The Examiner has rejected In re Marzocchi and In re Oetiker which require responsive argument to the fully addressed criticism against the Examiner's unfounded notions. In re Marzocchi, 439 F.2d 220, 223, 169 USPQ 367, 369 (CCPA 1971)] declares that the Examiner cannot make the rejection he has unless he has reason to doubt the objective truth of the statements contained in the written description, here corroborated and supported by multiple Declarations. "

[from Applicant's previous Communication to the Examiner]

111. Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. The Examiner did not cite Applicant's arguments, nor did the Examiner discuss Applicant's arguments, nor did the Examiner rebut Applicant's arguments. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. The Examiner was requested to answer and respond with specificity, but has not shown due diligence. Therefore, given the above, the Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response.

**84. The Examiner has been unresponsive to Applicant's arguments citing Gottschalk v. Benson**

"Utility is a fact question, and proof of utility is sufficient if it meets at least one stated objective. Measurement and product formation involve transformation of a state or thing. Therefore, the Examiner has not followed the standards of review because such a two state method should be patentable based upon opinion of the Court.

"Transformation and reduction of an article "to a different state or thing" is the clue to the patentability of a process claim that does not include particular machines."

[GOTTSCHALK v. BENSON, 409 U.S. 63 (1972),  
409 U.S. 63, No. 71-485]

"Industrial processes such as this ["a physical and chemical process (which involves) the transformation of an article .... into a different state or thing"] are the types which have historically been eligible to receive the protection of our patent laws. [450 U.S. 175, 185]"

[DIAMOND v. DIEHR, 450 U.S. 175 (1981)]

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. Therefore it is

impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. The Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response.

112. The Examiner has been unresponsive to Applicant's arguments citing Art. I, §8, cl. 8 and DIAMOND v. CHAKRABARTY, 447 U.S. 303, 309.

"The Examiner has rejected the controlling authority of Art. I, §8, cl. 8 which provides that "Congress shall have Power (t)o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries" Art. I, §8, cl. 8 empowers Congress in this matter. Yet, the Examiner has rejected that the US Congress has mandated progress. "The patent laws (reflect) this Nation's deep-seated .... need to encourage progress." [DIAMOND v. CHAKRABARTY, 447 U.S. 303 (1980), 447 U.S. 303, No. 79-136]

In the Office Communication [Exhibit "A"], the Examiner appears to have rejected that the US Congress has mandated encouragement of science, and the Office's actions are inconsistent both with the Patent Act of 1793, authored by Thomas Jefferson, which defined statutory subject matter as "any new and useful art, machine, manufacture, or composition of matter" Act of Feb. 21, 1793, 1, 1 Stat. 319, and with the Act which embodied Jefferson's philosophy that "ingenuity should receive a liberal encouragement." [447 U.S. 303, 309].

Therefore, because the Examiner appears to again ignore these matters, if in the future it becomes necessary to address compliance, standards of review, and recognition of receipt of said federal documents, applicant reserves the right to file a Complaint in federal court, including in the First Circuit, to address these cited matters involving said violations of the US Constitution and Office rules. Applicant submits these materials again, and hopes that this accountability matter will not be necessary. Applicant hopes that, instead, the Office will henceforth respect the accuracy of peer-reviewed publications [including those published by the American Nuclear Society, and the long detailed record in this and the associated applications, along with the urgent and critical need for this country's judicial economy and energy security, and the belief that the Patent Office is compliant with its standards of review and consistent with both said Constitution and aid Congressional directive.

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals.

113. Attention is now directed to the fact that Applicant's Communication stated,

"The Examiner improperly ignores and/or dismisses the Affiants' facts about the invention as "opinion". However, Declarants' statements and the peer-reviewed publications are Fact. The Applicant again asks the Office and Examiner (who refused to answer when asked on the telephone, as did his Supervisor): Exactly how many Declarants does it take to overcome the Examiner's unsubstantiated rejection? The answer is simple. The answer is quantitative. The answer is one (1)."

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals.

114. The Examiner states,  
*"Applicant traversed the rejection of claims under 35 U.S.C. 112, first paragraph, applicant on the grounds that: a) the claims are directly from the original specification (i.e. parent), and the scope and wording of the claims maintain the wording and scope of the original disclosure and claims; and b) the claims comply with the Federal Decision 00-1107 in the parent of the instant application. The Examiner disagrees because in its decision in 00-1107, the Board affirmed the rejection of the claims in the parent application for lack of enablement and utility. The Board concluded that the applicant "had not provided an enabling specification such that one of ordinary skill in the art could conduct the claimed cold fusion process without undue experimentation." (see page 14 of 00-1107)."*

First, the Examiner has not responded to the fact that the claims are directly from the original specification (S/N 07/371,937); or the Examiner is disingenuous about what was in that original specification. Where is the Examiner's substantive response? This important, relevant, substantial, significant, and fundamental argument in Applicant's Communication has simply been ignored by the Examiner. The Examiner did not discuss Applicant's argument, nor did the Examiner rebut the Applicant's argument. Therefore it is impossible to tell how the Examiner weighed Applicant's argument and there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals, Petition to the Commissioner, or Federal Court.

Second, the Examiner is changing the subject. The Board affirmed the Office's rejection of the parent application because of the Office's allegation that the Applicant did not respond to the Office regarding operability and utility. In fact, as demonstrated in the Applicant's Petition to the Supreme Court of the United States, and as corroborated by the record itself, this error on the part of the Board and Court were based upon what appear to be a series of disingenuous statements by the Office. If the Board erroneously concluded that the Applicant "had not provided an enabling specification", it is obvious that decision was based upon the assurance made to the Board by the Office. If necessary, the Applicant preserves all right to bring each and every erroneous statement made by the Office into the present record to correct either this, or any further misstatements, made about this matter in which at least one individual in the Office has violated 18 U.S.C. §1001.

115. The Examiner states,

*"5. Applicant also traversed the Examiner's statement that he has presented neither a working example nor description of an operating embodiment nor specific direction or guidance as to how to achieve the claimed results. Applicant cites the specification of the parent case, S/N 07/371,937, as proof that he has an operating embodiment. To the contrary, the Board in Federal Decision 00-1107 clearly stated that there is "complete absence of working examples in Swartz's specification" (see page 14 of 00-1107)."*

Applicant cited the specification of the parent case, S/N 07/371,937 not as proof of an operating embodiment, but that no new material was added in the present application. Applicant cited his other pending applications as proof of an operating embodiment, with loading measurement based upon S/N 07/371,937. In the Appeal which the Examiner cites, paper were withheld from the Board, for reasons to this day unclear. Attention of the Examiner is also directed to the fact that in the cited case on Appeal even the docket was changed.

116. The Examiner states,

*"Applicant cites declarations that allegedly demonstrate proof of operability and enablement. The submitted declarations have been fully considered but found unconvincing because of one or more of the following reasons ..."*

With all due respect. The Declarations prove utility, and affirm that the teachings were sufficient for those skilled in the art. Operability is demonstrated in the original specification and claims which teach and claim the present invention. Enablement, which is a legal definition, based upon both operability and utility, are decided by a Court. To demonstrate that the Applicant's umbrage to this has firm foundation, each of the Examiner's alleged issues will be now be discussed below in detail.

117. The Examiner states,

*"Applicant cites declarations that allegedly demonstrate proof of operability and enablement. The submitted declarations have been fully considered but found unconvincing because of one or more of the following reasons: a) They appear mainly directed to opinions and conclusions unsupported by facts (e.g., Ahern, Kurzweil, Miles, Rotegard and Storms). See In re Pike et al., 84 USED 235. No weight is given to an opinion declaration on the ultimate legal conclusion in issue. See In re Lindell, 155 USPQ 251."*

Despite this statement by the Examiner, the Declarations are directed to facts. Despite this statement by the Examiner, the Declarations' averments had facts which were discussed in detail for the forensic benefit of the Office -- and, if necessary, the Court. These discussions in said Declarations made by the declarants support the conclusions in the Applicant's communication made in response to the Office; and Applicant's communication has not been discussed from the office

(*vide supra, vide infra*). To even further demonstrate that the Examiner is wrong, these will be discussed in detail below.

Furthermore, the Office is incorrect because a declarant who states that his declaration, or affirmation, is an "opinion", does not thereby make it an opinion. This has been upheld by the Court, and cited by the Applicant in the previous communication to the office (which was ignored). In this regard, attention is directed to the fact that the Examiner has been unresponsive to Applicant's arguments regarding *In re Fouche* even though they were fully discussed in significant detail in the previous Communication from the Applicant to the Examiner, where Applicant stated,

**"The confusion here results from the fact that the Examiner has mistaken a question of fact for a question of law. The Examiner cannot dismiss Declarations improperly to "opinion"-status without an adequate explanation of how the Declarations failed to overcome the *prima facie* case initially established by the Examiner. Thus, because utility is a fact question, and proof of utility is sufficient if it is convincing to one of ordinary skill in the art or if it meets at least one stated objective. In this case, the invention is convincing to several of ordinary skill in the art who have stated so at public meetings and the invention meets several stated objectives. The invention (structure, operation and composition) is defined by the claims and the original specification, and in this case they correctly define the invention, and the teachings have been corroborated, and therefore there is enablement (a question of law; *In re Fouche*, 439 F.2d 1237, 1243, 169 USPQ 429, 434, (CCPA 1971)). Enablement, utility, and operability are grounds for patentability.**

**The Examiner's error becomes further unlawful because the Examiner has also rejected *In re Alton* which requires that even the use of the words "it is my opinion" to preface what someone of ordinary skill in the art knows does not transform the factual statements contained in the declaration into opinion testimony.**

[from Applicant's previous Communication to the Examiner]

Attention is now directed to the fact that said arguments in Applicant's Communication have simply been ignored by the Examiner. The Examiner did not cite Applicant's arguments, nor did the Examiner discuss Applicant's arguments, nor did the Examiner rebut Applicant's arguments. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments; there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. Therefore, given the above, the Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response. Specifically, the Applicant hereby requests to know the scientific basis, or any basis which allows the Examiner to dismiss the Argument that,

**"The Examiner's error becomes further unlawful because the Examiner has also rejected In re Alton which requires that even the use of the words "it is my opinion" to preface what someone of ordinary skill in the art knows does not transform the factual statements contained in the declaration into opinion testimony."**

The Examiner should explain his newfound authority for bypassing the law which states that weight must be given to such a declaration. If the Examiner, or Office disagrees, the Applicant hereby explicitly requests that the office provides a factual basis, with accuracy and precision and authority, for each such declaration cited, so that it shall be clear what are the alleged facts that purportedly prove the office's statement.

118. The Examiner states,

*"Applicant cites declarations that allegedly demonstrate proof of operability and enablement. The submitted declarations have been fully considered but found unconvincing because of one or more of the following reasons:*

*c) They were submitted in support of a different application, have been previously considered on appeal, and applicant's petition denied (e.g., Mallove, Verner, and Straus). Additionally, the applicant did not establish the relevance of these declarations to the current application."*

The Examiner has not presented any argument of substance, precision regarding the basis and authority of his ignoring said submitted declarations by the Office, any of them. In fact, the submitted declarations are convincing to one who is not biased. Attention is directed to the fact that the declarants and the Communications from the Applicant to the Office each explained why their statements are relevant, and why said statements pertain to the Examiner's (erroneous) rejections.

In addition, despite the above statement by the Examiner, the declarations were submitted with discussion of how they have relevance to the current application and the behavior of the Office. As one example, attention is now directed to the previous Communication from the Applicant which said (but was ignored, as usual),

*"Said Declarations and almost four hundred references, constitute a bona fide case. They demonstrate validation, operability, and utility of the Applicant's claimed subject matter as correctly taught in the original specification and claims regarding said monitored vibrating electrode. Straus (A44-A48) and Swartz (A18-A43) contained factual statements directly addressing how the specification adequately described the subject matter recited in the claims of S.N 09/750,480 and demonstrate that it operates as stated. They also herald that a person of ordinary skill in the art would have understood the inventor to have been in possession of the claimed invention at the time of filing. Simply put, the post-filing references establish that, as of the filing date, one of skill-in-the-art could use a method to monitor a vibrating electrode without undue experimentation. Vibrational modes of a material are not "incredible" (A144) but can be elicited when using the teaching of the original*

**specification and claims. Vibrations are not unproven "theory" (A153) as the Examiner disingenuously purports."**

[from Applicant's previous Communication to the Examiner]

Where is the Examiner's substantive response?

Furthermore the Office is wrong when it states, "*(t)hey were submitted in support of a different application*", because many of the declarations were submitted, from the present record. As but one example, is the citation of the Straus and Fox Declarations which discuss this invention, but were not considered.

Furthermore the Office is wrong when it states, "*(t)hey ... have been previously considered on appeal*", because the declarations were submitted, but many were not considered on appeal (Exhibit 7). Corroborating this, and further supporting the Applicant, the Court did not address them.

Furthermore, attention is now directed to the fact that the Board ordered the office to respond to them [Exhibit "6"] but, of course, the Office did not substantively, demonstrating a lack of due diligence by the Office and the Examiner. Therefore, the Court did not address them.

In summary, attention is directed to the fact that, corroborating this, the arguments in the previous Communication from the Applicant to the Office have been substantively ignored by the Office, explaining the Office need to impugn Applicant's affiants.

119. The Examiner states,

*"Applicant cites declarations that allegedly demonstrate proof of operability and enablement. The submitted declarations have been fully considered but found unconvincing because of one or more of the following reasons: d) They deal with issues in the cold fusion area that have since been either discredited, abandoned, found defective or else overtaken by events (e.g., Mallove on the Japanese cold fusion research)."*

None of the issues, arguments, facts, or matters of rebuttal, in the Applicant's previous Communication have been the discredited, abandoned, found defective or overtaken by any events. The Examiner has used a broad brush, with tongue firmly in cheek, to impugn the applicant for no reason and without any basis. The Applicant explicitly requests hereby that the Examiner state precisely and with accuracy exactly what issue has been allegedly discredited. The Applicant explicitly requests hereby that the Examiner state precisely and with accuracy exactly what issue has been allegedly abandoned, The Applicant explicitly requests hereby that

the Examiner state precisely and with accuracy exactly what issue has been allegedly found defective.

120. The Examiner states,

*"Applicant cites declarations that allegedly demonstrate proof of operability and enablement. The submitted declarations have been fully considered but found unconvincing because of one or more of the following reasons: e) They do not appear to have been declarations of disinterested parties (e.g., Swartz, Rotegard)."*

There is no substantive basis for the Office to have stated this. Attention is directed to the fact that the Declarants of said Declarations have been sworn, but the Examiner has not. Therefore, the Applicant hereby explicitly requests that the Office state why Mr. Rotegard and Dr. Swartz should be disqualified or found unconvincing because they are allegedly disinterested parties. The Applicant asks the office to be accurate and precise and to state exactly which declaration is being discussed, and exactly why the stated parties are unconvincing. Given the broad-brush attack by the Office, the Examiner and Office should make these details with substantive precision and detailed accuracy because this latest attack is apparently again made to impugn the Applicant.

121. The Examiner states,

*"2. Applicant's arguments traversing the rejection of have been fully considered but they are not persuasive because they can be best characterized, for example, as follows: Irrelevant (e.g., alleging that new matter in the disclosure is the result of the election requirement of the Examiner of parent application)."*

**THE TRUTH - Applicant's arguments NOT been Substantively considered**

The Examiner is incorrect. Almost none of Applicant's arguments have been fully considered. They are persuasive, and they have been ignored substantively. Therefore it is impossible to tell how the Examiner weighed any of Applicant's arguments. There is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. In this case, the Examiner falsely claims that *"alleging that new matter in the disclosure is the result of the election requirement of the Examiner of parent application"* is *"Irrelevant"*. Thus, this is a false statement of the Examiner as proven above in detail regarding the word "loading", because the matter is very relevant as it effects both the date of the application and relevancy of the cited art.

122. The Examiner states,

"2. Applicant's arguments traversing the rejection of have been fully considered but they are not persuasive because they can be best characterized, for example, as follows: Improper interpretation (e.g. alleging that hydrogen loading is not new matter because it is a subject discussed extensively in cited literature)"

**THE TRUTH - Applicant's arguments NOT been Substantively considered**

The Examiner is incorrect. Almost none of Applicant's arguments have been fully considered. They are persuasive, and they have been ignored substantively. Therefore it is impossible to tell how the Examiner weighed any of Applicant's arguments. There is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. In this case, the Examiner falsely claims that Applicant "allege(ed) that hydrogen loading is not new matter because it is a subject discussed extensively in cited literature". This false statement of the Examiner is proven by the record itself because "loading" has been shown indelibly to be "not new matter" because it was in the original specification and claims, and even in the Appeal to the Board of the original specification and claims (*vide supra*).

123. The Examiner states,

"2. Applicant's arguments traversing the rejection of have been fully considered but they are not persuasive because they can be best characterized, for example, as follows: Recycling of old arguments that have no merit (e.g., Examiner could not have found prior art if the invention was indefinite)"

**THE TRUTH - Applicant's arguments NOT been Substantively considered**

The Examiner is incorrect. Almost none of Applicant's arguments have been fully considered. They are persuasive, and they have been ignored substantively. Therefore it is impossible to tell how the Examiner weighed any of Applicant's arguments. There is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. In this case, the Examiner falsely claims that there was "Recycling of old arguments that have no merit (e.g., Examiner could not have found prior art if the invention was indefinite)". This false statement of the Examiner is proven because, first, that Examiner could not have found prior art if the invention was indefinite, is not an old argument, but is a relevant argument which is ignored by the Examiner. Second, there is significant merit to the matter. Third, it was discussed in the Declarations also ignored by the Examiner.

Attention is now directed to the fact that the *Amicus Curiae* Brief of Talbot Chubb [Exhibit "14", 2/22/01], *Amicus Curiae* Brief of Drs. Edmund Storms [Exhibit "10", 2/21/01], Averment 4 in the *Amicus Curiae* Brief of Mr. Rotegard [Exhibit "12", 2/21/01], Pages 4 through 8 in *Amicus Curiae* Brief of Thomas Valone [Exhibit "11", 2/24/01], and pages 2-5 in the Straus Declaration [Exhibit "8", November 27, 1992] have been ignored even though the affiants have probative value and even though the averments prove operability of the present invention.

Attention is now directed to the fact that the *Amicus Curiae* Brief of Drs. Edmund Storms [Exhibit "10", 2/21/01], *Amicus Curiae* Brief of Hal Fox [Exhibit "18", 5/8/02], *Amicus Curiae* Brief of Eugene Mallove [Exhibit '20", 5/8/02 ], Declaration of Scott Chubb [Exhibit "15", 8/13/01], Declaration of Hal Fox [Exhibit "16", 5/16/95], Declaration of Mr. Rotegard [Exhibit "13", 5/15/94], Declaration of Hal Fox [Exhibit "17", 8/14/01], Declaration of Eugene Mallove [Exhibit "19", 5/6/94], and Straus Declaration of [Exhibit "9", 5/22/94] have been ignored even though the affiants have probative value and even though the averments prove utility of the present invention.

124. The Examiner states,

"2. *Applicant's arguments traversing the rejection of have been fully considered but they are not persuasive because they can be best characterized, for example, as follows: Recycling of arguments previously rejected in denied petitions (e.g., Examiner is forcing Applicant into double patenting)"*

**THE TRUTH - Applicant's arguments NOT been Substantively considered**

The Examiner is incorrect. Almost none of Applicant's arguments have been fully considered. They are persuasive, and they have been ignored substantively. Therefore it is impossible to tell how the Examiner weighed any of Applicant's arguments. There is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. In this case, the Examiner falsely claims that there is "*Recycling of arguments previously rejected in denied petitions (e.g., Examiner is forcing Applicant into double patenting)"*". This false statement of the Examiner is proven by the fact that the issue is presently before the Board and is an open question. Furthermore, it is a fact that it has not been substantively addressed consistent with common standards of review.

125. The Examiner states,

*"2. Applicant's arguments traversing the rejection of have been fully considered but they are not persuasive because they can be best characterized, for example, as follows: Inconsistency with factual information (e.g., changes in the specification respond to and fully comply with Federal Appellate Decision 00-1107)"*

**THE TRUTH - Applicant's arguments NOT been Substantively considered**

The Examiner is incorrect. Almost none of Applicant's arguments have been fully considered. They are persuasive, and they have been ignored substantively. Therefore it is impossible to tell how the Examiner weighed any of Applicant's arguments. There is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. In this case, the Examiner falsely claims that there is "*Inconsistency with factual information (e.g., changes in the specification respond to and fully comply with Federal Appellate Decision 00-1107)*". This Applicant hereby demands that Examiner substantively explain his comment which impugns the Applicant.

126. The Examiner states,

*"2. Applicant's arguments traversing the rejection of have been fully considered but they are not persuasive because they can be best characterized, for example, as follows: Improper definition of terms (e.g., applicant appears to define "skilled-in the art" as declarants, affiants and Amicus Curiae who agree with him but excludes those with contrary opinion)"*

**THE TRUTH - Applicant's arguments NOT been Substantively considered**

The Examiner is incorrect. Almost none of Applicant's arguments have been fully considered. They are persuasive, and they have been ignored substantively. Therefore it is impossible to tell how the Examiner weighed any of Applicant's arguments. There is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. In this case, the Examiner falsely claims that there is "*Improper definition of terms (e.g., applicant appears to define "skilled-in the art" as declarants, affiants and Amicus Curiae who agree with him but excludes those with contrary opinion)*". This Applicant requested that the Examiner substantively explain his comment which impugns the Applicant, including exactly where Applicant states this. It is unfair to thousands of scientists and researchers that the Examiner impugns them as well with his "brick-toss" handwave *ad hominem*. Each of these individuals took the time to comply with federal regulations, but were smeared and/or disparaged by the Examiner, for reasons unclear.

127. The Examiner states,

"2. *Applicant's arguments traversing the rejection of have been fully considered but they are not persuasive because they can be best characterized, for example, as follows: Failure to establish relevance of documents to current application (e.g., Mallove declaration)"*

First, the Examiner is incorrect. Almost none of Applicant's arguments have been fully considered. They are persuasive, and they have been ignored substantively. Therefore it is impossible to tell how the Examiner weighed any of Applicant's arguments. There is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. In this case, the Examiner falsely claims that there has been "Failure to establish relevance of documents to current application (e.g., Mallove declaration)." This false statement of the Examiner is proven above in detail.

NOTA BENE: Second, attention of the Court and Board is directed to the simple fact that all matters were both resolved and discussed by the Appellant, prior to the murder of Appellant's Declarant, Dr. Eugene Mallove, whose statements have been disparaged by the Office for several years. It is unfortunate that Dr. Mallove strived so hard to make the Court and the Board aware of the truth only to have his words ignored by the Office, before he was brutally murdered six weeks ago.

To give the Board a second opportunity to hear the words of the late Dr. Mallove, and to further prove operability of the Appellant's cold fusion systems, Appendices C, D, and E are included to demonstrate independent comments for the Board, and Court, if necessary.

128. The Examiner's Response is also non-responsive to the submitted Declarations and *Amicus Curiae* Briefs which remain unrebutted and which corroborate both the "utility" of these teachings. In this case, as in S/N 07/760,970 and Federal Appeals Court 00-1108, and Federal Appeals Court 00-1107, the Office is disingenuous because the Office has ignored the many Declarants who affirm utility. Said affiants prove utility. It is a fact, apparently ignored and disliked by a certain disingenuous element within the US Patent Office which is determined to keep alternative energy from the United States even during War.

For example, the Examiner's Response is non-responsive to the Rotegard Declaration:

"If only a few labs had reported success, then skepticism of cold fusion would be viable. Several research teams reported positive finding on the original Fleischmann Pons effect at the Fourth International Conference on Cold Fusion in December 1993. I submit that Occams razor would dictate that the phenomena is real and has been "reproduced" to the point of overkill.

"Major research institutions, industrial corporations and established scientific journals of international repute have endorsed the reality of cold fusion and are acting to explore and benefit from this reality. \*\*\* These trends would lead a prudent person to conclude that there is substance to the research cited above. Therefore, developments and inventions in this area have great utility."

[Declaration of Dana R. Rotegard, 1994]

As another example, the Examiner's Response is non-responsive to the fact that Dr. McKubre stated:

"For me, the best heat report, and perhaps the best report at this conference, was that of Mitch Swartz. ... I have not been able to perform the experiments myself, successfully, and I have always felt that the quality of the calorimetric observations in the nickel light water studies has been less than the quality of the calorimetric observations in the palladium-detuerium system. ... Mitch Swartz presented a very clear piece of calorimetric evidence which is certainly going to cause me to reconsider my belief and understanding of the nickel-light water system and its capacity to produce anomalous heat"

[Dr. Michael McKubre, SRI, Infinite Energy, 4, 20 , pp.34-35, (1998)]

As another example, the Examiner's Response is non-responsive to the fact that Dr. Michael Schaffer (A55, 8/7/01) said,

"I do not see how anyone could construe anything that I wrote at Scientific American's site to imply that there is "no utility" in cold fusion, much less in instruments that might be used in cold fusion and other scientific experiments. ... As an expert ... I would agree [Dr. Swartz's invention] ... does have utility".

The Examiner's Response is also non-responsive to the fact that Dr. Rehn, U.S. Navy, said :

"Perhaps the clearest scientific fact, at this time, is the hardest for physicists to accept: nuclear reactions apparently do occur in deuterium-loaded Pd, Ti, and probably in other solids."

[Office of Naval Research Asian Office, NAVSO P-3580, Vol. 18, Jan. 1993].

This confirms that Dr. Will, another Office witness, said,

"Significant positive results have been obtained (by) 100 groups from more than 12 countries"

[Final Report NCFI (1991)].

The Examiner's Response is non-responsive to the fact that controlled nuclear fusion offers the possibility of an inexpensive source of energy for the United States and is of great utility. The original specification has explicitly indicated why there is great utility of both the field and the present invention. Energy needs dominate both the economy and welfare of humanity as has been shown historically. Therefore, this technology has great utility to society.

Previously the Applicant requested the following but was ignored,

**Specifically, Applicant requests that Examiner makes clear in the record which of these submitted averments by the Declarants regarding operability and utility were formally considered, and if the Examiner disputes them, exactly how he will have reached his conclusion. If the Examiner dismisses, ignores, or relegates improperly to "opinion"-status, any or all of the submitted Declarations, the Applicant hereby explicitly requests an adequate explanation of how the Declarations failed to overcome the prima facie case initially established by the Examiner. If the Examiner has anything which differs or rebuts anything in the original specification and claims -- or the Declarations and Exhibits, Applicant requests it is stated explicitly pointing to where in Applicant's publications or applications said rebuttal relates with specificity."**

129. Also presented to, but ignored by the Examiner, the Applicant made substantive arguments rebutting the Examiner's position in Applicant's Communication dated 10/22/03 which was a significant and complete response to the Office's Communications of 7/9/03 and 9/27/03, and in Applicant's Communication dated 11/25/03 which was a significant and complete response to the Office's Communication of 11/5/03, and in Applicant's Communication dated 1/28/04 which was a significant and complete response to the Office's Communication of 1/13/04.

Also presented to the Office was a Petition to the Commissioner dated 1/28/04 which was a significant and complete response to the Office's Communications.

130. The Examiner's Response is also non-responsive to the Applicant's discussion of the parent application, S/N 07/731,937. That Court ruled that the Applicant had only listed fusion (based upon the misstatements of the Office). That has been corrected in the present application which also lists loading as was taught in the original specification.

131. The Examiner's Response is non-responsive to the fact that he is incorrect and substantively contradicted Drs. Chubb, Fox, Mallove, McKubre, and by the Office's own previous witnesses, Dr. Rehn and Dr. Will. Publications including Swartz, M., "Possible Deuterium Production from Light Water Excess Enthalpy Experiments Using Nickel Cathodes", *Journal New Energy*, 1, 3, 68-80 (1996) absolutely prove Applicant was correct on the filing date of the application [In re Hogan, 559 F.2d 595, 60S, 194 USPQ 527, 537 (CCPA 1977)].

## LAW

132. This is important because proof of utility should be judged either by those using the invention or those skilled in the art. Corroborating this, validation occurs when scientists actually skilled, and working, in the state-of-the-art state it to be so. These scientists who write the current scientific technical papers which undergo peer-review, file patent applications, and attend international conferences (which have gone on for thirteen years) and they absolutely disagree with the Examiner.

The Examiner's Response is non-responsive to the fact that utility is a fact question, and proof of utility is sufficient if it is convincing to one of ordinary skill in the art or if it meets at least one stated objective. Here it does. Unrebutted Declarations have been submitted in this case, and are again submitted, and the Examiner must respond to them substantively [Marino v. Hyatt Corporation; Morrill v. Tong; and Chelebda v.H.E. Fortuna & Brothers Inch]. Furthermore, the Examiner has rejected Marino v.Hyatt Corporation, 793 F.2d 427, 430 (1st Cir. 1986); Morrill v.Tong, 390 Mass. 1207 129 (1983); Chelebda v.H.E. Fortuna & Brothers Inch 609 F.2d 1022 (1st Cir. 1979); Lewis v. Bours, 119 Wn.2d 667, 670, 1992] which require the Examiner to assume that the Declarants' assertions are true. The Declarations demonstrate that the original specification and claims clearly define subject matter of considerable utility. Therefore, the Applicant has fully conformed with, and satisfied, the requirements of §101 of the Patent Act and met at least one (1) stated objective [Standard Oil Co. (Indiana) v.Montedison, S.P.A., 664 F.2d 356, 375, 212 USPQ 327, 344 (3rd Cir. 1981), cert. denied, 456 U.S. 915, 102 S.Ct. 1769, 72 L.Ed.2d 174 (1982); E.I. du Pont de Nemours & Co. v.Berkley & Co., 620 F.2d 1247, 1258 n.10, 1260 n.17, 205 USPQ 1, 8 n.10, 10 n.17 (8th Cir.1980); Krantz and Croix v.Olin, 148 USPQ 659, 661-62 (CCPA 1966); Chisum on Patents, 4.04[4] [1983]; RAYTHEON COMPANY v.ROPER CORPORATION, U.S.C.A., Federal Circuit, 1983, 724 F.2d 951, 220 USPQ 592].

133. The Examiner has not followed the standards of review. The Office's own rule [M.P.E.P. §2111.01] requires that "the words of a claim ... must be read as they would be interpreted by those of ordinary skill in the art". In this case, given the averments of so many, utility under USC 101 is clearly shown.

"Utility is a fact question, see e.g., Wilden Pump v. Pressed & Welded Products Co, 655 F.2d 984, 988, 213 USPQ 282, 285 (9th Cir. 1981); Nickola v. Peterson, 580 F.2d 898, 911, 198 USPQ 385, 399 (6th Cir. 1978), cert. denied, 440 U.S. 961, 99 S.Ct. 1504, 59 L.Ed.2d 774 (1979)." [RAYTHEON COMPANY v. ROPER CORPORATION, U.S.C.A., Federal Circuit, 1983, 724 F.2d 951, 220 USPQ 592]]

"When a properly claimed invention meets at least one stated objective, utility under 101 is clearly shown. See e.g., Standard Oil Co. (Indiana) v.

**Montedison, S.P.A., 664 F.2d 356, 375, 212 USPQ 327, 344 (3rd Cir. 1981), cert. denied, 456 U.S. 915, 102 S.Ct. 1769, 72 L.Ed.2d 174 (1982); E.I. du Pont de Nemours & Co. v. Berkley & Co., 620 F.2d 1247, 1258 n. 10, 1260 n. 17, 205 USPQ 1, 8 n. 10, 10 n. 17 (8th Cir.1980); Krantz and Croix v. Olin, 148 USPQ 659, 661-62 (CCPA 1966); Chisum on Patents, 4.04[4] [1983]."** [RAYTHEON COMPANY v. ROPER CORPORATION, U.S.C.A., Federal Circuit, 1983, 724 F.2d 951, 220 USPQ 592]]

"Proof of utility is sufficient if it is convincing to one of ordinary skill in the art. In re Irons, 52 CCPA 938, 340 F.2d 974, 144 USPQ 351 (1965). The amount of evidence required depends on the facts of each individual case. In re Gazave, 54 CCPA 1524, 379 F.2d 973, 154 USPQ 92 (1967). The character and amount of evidence needed may vary, depending on whether the alleged utility appears to accord with or to contravene established scientific principles and beliefs. In re Chilowsky, 43 CCPA 775, 229 F.2d 457, 108 USPQ 321 (1956)."

[In Re Jolles, U.S.C.P.A., 1980. 628 F.2d 1322, 206 USPQ 885]

### The Examiner Mistakes a Question of Fact for a Question of Law

134. The Examiner's Response is non-responsive to the fact that the Examiner dismisses the affiants discussing Applicant's inventions as opinion. However, Declarants' statements and the peer-reviewed publications are Fact. The Examiner has mistaken a question of fact for a question of law. The Examiner cannot dismiss Declarations improperly to "opinion"-status without an adequate explanation of how the Declarations failed to overcome the prima facie case initially established by the Examiner. The Examiner has rejected In re Alton which requires that even the use of the words "it is my opinion" to preface what someone of ordinary skill in the art knows does not transform the factual statements contained in the declaration into opinion testimony. Exactly how many Declarants does it take to overcome the Examiner's unsubstantiated rejection?

The Examiner's Response is non-responsive to the fact that the Examiner has ignored the directive of 1.131 (a)(1) which requires that

**"When ... a patent ... is rejected .... on reference ... to a printed publication, the inventor of the subject matter of the rejected claim ... may submit an appropriate oath or declaration to overcome the patent or publication."**

135. The Examiner's Response is non-responsive to the fact that the Examiner has changed the standards of review.

The Examiner has rejected In re Zurko [142 F.3d 1447, 1449, 46 USPQ2d 1691, 1693 (Fed. Cir.), cert. granted, 119 S. Ct. 401 (1998)] which declares that utility is a fact question [Raytheon Company V.Roper Corporation, U.S.C.A., Federal Circuit, 1983, 724 F.2d 951, 220 USPQ 592], and one which the Examiner in this case must review for clear

error [Cross v.Iizuka, 753 F.2d 1040, 1044 n.7, 224 USPQ 739, 742 n.7 (Fed. Cir. 1985); also In re Zurko].

In re Irons indicates that utility is a fact question [Raytheon Company V. Roper Corporation]. The submitted Declarations and the publications (including e.g. McKubre) are relevant as proof of utility. They demonstrate utility and operability at the time of the filing of this patent, and that it was, and is, important and of considerable utility.

The Examiner has rejected In re Ziegler [992 F.2d 1197, 1200, 26 USPQ2d 1600, 1603 (Fed. Cir. 1993)] which requires the Examiner accept Declarations as factual proof of utility.

The Examiner has rejected In re Ferens [417 F.2d 1072, 1074, 163 USPQ 609,611 (CCPA 1969)] which heralds that Applicant's submitted evidence, including Declarations, is sufficient.

136 The Examiner has rejected Ex parte Porter which requires that Declarations, submitted in response to the Examiner's comments, must be read, examined, and carefully considered.

The Examiner has rejected In re Morris [127 F.3d 1048, 1053-56, 44 USPQ2d 1023, 1027-30 (Fed. Cir. 1997)] which demands that the interpretation of operability and utility is predicated upon that which one who is skilled-in-the-art would reach. The Examiner must give the claims their broadest reasonable interpretation consistent with that which those skilled-in-the-art would reach.

The Examiner has rejected In re Oetiker [977 F.2d at 1445, 24 USPQ2d at 1444] which requires the Examiner substantively and fully respond to the probative witnesses, because Applicant has undertaken the full burden coming forward.

The Examiner has rejected Ex parte Gray [10 USPQ2d 1922, 1928 (Bd. Pat. App. & Inter. 1989)] which allows for Applicant's submitted expert testimony regarding operability and utility, beyond the detailed specification. The Examiner must give substantial weight to said Declarations about what they said about this invention compared to the Examiner's art regarding the work of others.

137. Examiner has rejected In re Brana, 51 F.3d at 1566, 34 USPQ2d at 1441] which indicates Applicant's actions hereby meet the "burden shift ... to provide rebuttal evidence sufficient to convince such a person of the invention's asserted utility".

The Examiner has rejected In re Marzocchi and In re Oetiker which require responsive argument to the fully addressed criticism against the Examiner's unfounded notions. In re Marzocchi, 439 F.2d 220, 223, 169 USPQ 367, 369 (CCPA 1971)] declares that the Examiner cannot make the rejection he has unless he has reason to doubt the objective truth of the statements contained in the written description, here corroborated and supported by multiple Declarations.

**ADDITIONAL REASON OVERCOMING THE EXAMINER'S POSITION REGARDING USC 101**

**Transformation for Inactive to Active is Patentable even without the Other Features**

138. Utility is a fact question, and proof of utility is sufficient if it meets at least one stated objective. Here it does - a method to increase loading.

Furthermore, a method to increase loading necessarily involves transformation of a state or thing. Therefore, the Examiner has not followed the standards of review because such a two state method should be patentable based upon opinion of the Court.

**"Transformation and reduction of an article "to a different state or thing" is the clue to the patentability of a process claim that does not include particular machines."**

[GOTTSCHALK v. BENSON, 409 U.S. 63 (1972),  
409 U.S. 63, No. 71-485]

**"Industrial processes such as this [ "a physical and chemical process (which involves) the transformation of an article .... into a different state or thing" ] are the types which have historically been eligible to receive the protection of our patent laws. [450 U.S. 175, 185]"**

[DIAMOND v. DIEHR, 450 U.S. 175 (1981)]

**ADDITIONAL REASON OVERCOMING THE EXAMINER'S POSITION REGARDING USC 101**

**The Examiner Ignores Constitutional and Congressional Directive and Authority**

139. The Examiner has rejected the controlling authority of Art. I, §8, cl. 8 which provides that

**"Congress shall have Power (t)o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries."**

Art. I, §8, cl. 8 empowers Congress in this matter.

The Examiner has rejected that the US Congress has mandated progress.

"The patent laws (reflect) this Nation's deep-seated .... need to encourage progress."

[DIAMOND v. CHAKRABARTY, 447 U.S. 303 (1980),  
447 U.S. 303, No. 79-136]

The Examiner has rejected that the US Congress has mandated encouragement of science, and the Office's actions are inconsistent with the Patent Act of 1793, authored by Thomas Jefferson, which defined statutory subject matter as "any new and useful art, machine, manufacture, or composition of matter" Act of Feb. 21, 1793, 1, 1 Stat. 319, and with the Act which embodied Jefferson's philosophy that "ingenuity should receive a liberal encouragement." [447 U.S. 303, 309].

Given the facts stated above, and the fact the Office has granted patents to inventions of considerably less "utility" [e.g. Patent 3,580,592 or 3,450,403], any further rejection of the present invention on this arbitrary basis based upon such a presumed "non-utility" would appear to be both capricious, unwarranted, and unreasonable. As the original specification and claims teach, the invention solves a long-standing problem and has features of great utility. The Examiner should admit that said features are not "incredible" but can be elicited when using the teachings of the original specification and claims. Furthermore, there is documented existence of these reactions and the preferred environment in which the present invention does operate. The number of papers in this field confirms both the "existence" and "utility" of these phenomena and any associated technologies.

140. Appellant asks the Board, because the Examiner and his supervisor both refused to answer the following question:

Exactly how many Declarants does it take to overcome the Examiner's [unsubstantiated] rejection regarding utility?

In summary, the invention (structure, operation and composition) is defined by the claims and the original specification, and in this case they correctly define the invention, and it the teachings have been corroborated, and therefore there is enablement (a question of law; In re Fouche, 439 F.2d 1237, 1243, 169 USPQ 429, 434, (CCPA 1971)). Enablement, utility, and operability are grounds for patentability. In this case, the Applicant has set forth products and methods which have undergone peer-review, and

Declarants and other affiants who have stated as fact that there is utility within the meaning of 35 U.S.C. 101 [Brenner v. Manson, 148 U.S.P.Q. 689].

141. In summary, in this case, the Applicant has set forth products and methods which have undergone peer-review, and as such do present utility within the meaning of 35 U.S.C. 101 [Brenner v. Manson, 148 U.S.P.Q. 689]. Therefore, in this case, utility under 101 is clearly shown. Given the utility Applicant respectfully requests reconsideration of the rejection of Claims 1-20 pursuant to U.S.C. 101.

Therefore, in this case, utility under 101 is clearly shown. Corroborating this are Exhibits "D" which demonstrate operability and utility of Appellant's technology. Given the utility, Appellant respectfully requests reconsideration and reversal of the rejection of Claims 1-20 pursuant to U.S.C. 101.

## ARGUMENT - OTHER ISSUES - PURPORTED NEW MATTER

142. The Examiner states,

"3. On the issue of new matter, the Examiner identified examples of differences between the parent application (S/N 07/371,937) and the current application. Applicant's argument that the new matter was the result of the restriction requirement made by a previous Examiner is irrelevant. The issue is whether or not there is new matter in the current application. Also, applicant himself admits, for example, that the term, "loading", in the current application has a different meaning than the term, "electrochemically nuclear fusion" in the parent application (see page 8 of 11 /28/03 of Amendment). Therefore the current application does not qualify as a continuation of the parent and is only entitled to the priority of its filing date of 12/28/2000. Accordingly, the Examiner will address only those substantive items of the traverse that are consistent with the 12/28/2000 filing date."

### THE TRUTH - The Examiner Has Been Substantively Unresponsive, This was Discussed Previously

The Examiner is wrong, and appears disingenuous, for several reasons. First, "loading" was discussed in the original specification of the parent application (S/N 07/371,937) as discussed below. It was discussed by Examiner Wasil [Exhibit "2"].

Second, "loading" was discussed in the original claims of the parent application (S/N 07/371,937) as discussed below.

Third, "loading" was discussed in the Appeal Brief to the Board in the parent application (S/N 07/371,937), as shown in Exhibit "3".

Fourth, "loading" was discussed in the Appendix to the Federal Court in the parent application (S/N 07/371,937), as shown in Exhibit "4".

Fifth, this has been substantively unresponsive because this was in the original specification. Corroborating this, as was discussed in detail in the previous Communication from the Applicant to the Examiner on pages 7 through 10, the Applicant wrote the following comment,

**"THE TRUTH - Examiner Wasil, the Record, the Court disagree with the Examiner**

The Examiner is either inaccurate or disingenuous. With all due respect, this is NOT new material. The "and" results from the previous Examiner, Mr. Daniel Wasil. The near identical specification and near identical drawings of Serial no. 07/371,937 have already gone through a restriction by the Primary Examiner Daniel Wasil. Mr. Wasil separated 07/371,937 into three inventions. As Exhibit C demonstrates, the record proves that this has been concluded. Invention 1 involves "an apparatus and method

for producing a vibrational frequency of a cathode". Invention 3 involves "an apparatus and method for accelerating nuclear fusion reactions".

Invention 1 - "for producing a vibrational frequency of a cathode".

Invention 3 - "for accelerating nuclear fusion reactions".

The above-entitled invention is Invention #1. Therefore, the wording and scope of the Continuation ['480] fully maintain the wording and scope of the original disclosure and claims."

[from Applicant's previous Communication to the Examiner]

Thus, it can be seen that the loading of '480 was exactly, specifically, and precisely described in '937. The Applicant is accurate, whereas the Examiner is not.

143. Where is the Examiner's substantive response to Exhibit "2"? Attention is now directed to the fact that said comments in Applicant's Communication have simply been ignored by the Examiner. The Commissioner, and Court, should note that the Examiner did not cite Applicant's arguments, nor did the Examiner discuss Applicant's arguments, nor did the Examiner rebut Applicant's arguments. Therefore it is impossible to tell how the Examiner weighed Applicant's arguments, there is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. Because the Examiner was requested to answer and respond with specificity, therefore, given the above, the Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant.

Specifically, the Applicant hereby requests to know the authority, or scientific basis, or any basis whatsoever, which allows the Examiner to dismiss the Argument that,

"Mr. Wasil separated 07/371,937 into three inventions. ... Invention 1 involves "an apparatus and method for producing a vibrational frequency of a cathode".

144. Also ignored by the Examiner is the following argument and extensive details (cited with precision from Declarations) by the Applicant,

"**S.N. 07/371,937 [presently S.N. 09/750,480 as a Continuation (hereinafter '480)] teaches means to monitor loading by a vibration frequency of the loaded material.** The cited issues are discussed fully therein. The invention is a method for monitoring a fuel located within ("loaded") a material, like a sponge fills with water. The method uses a vibration of the material. The invention [Appl. 07/371,937, Appendix to 00-1107 as pages Appendix 160-189, hereinafter A160-189] solves the long-standing problem of measuring the loading remotely and non-invasively - features of great utility. The original disclosure taught the preferred embodiment, the vibrational cathode (A166-A167), monitoring subsystems (A168-A170), viscosity, damping, surface materials (A169), and coupling to a large mass. The equations of motion conform to known physics (A170-A173). The teachings in the original specification included an analysis of the vibratory motion, with discussion of the impact of loading, solution viscosity, and damping, conforming to known physics (A170-A173)."

[from Applicant's previous Communication to the Examiner]

Where is the Examiner's substantive response because loading was discussed in the Decision [Exhibit "5"]?

Where is the Examiner's substantive response because loading was even discussed in the Remand to the Examiner [Exhibit "6"]?

145. Where is the Examiner's substantive response to the cited Original Specification? Ignored by the Examiner is the following argument by the Applicant,

**"Matters of hydrogen loading ... were discussed explicitly in the original specification, of which this application is the Continuation."**

[from Applicant's previous Communication to the Examiner]

Attention is directed to the unfortunate fact that said comment in Applicant's Communication has simply been ignored by the Examiner -- despite the indelible truth, to wit: Loading was discussed a number of times in the original specification of which this application is a Continuation. For example, on page 3 of the original specification of which this application is a Continuation, the inventor wrote,

**"Third, present methods to monitor the changes of deuterium loading into palladium (and other metals) are made difficult in that the material must be removed from the fusion chamber, thereby not only stopping the reaction, but also cross-contaminating both the cathode and the laboratory."**

[Original Specification, SN 07/371,937]

Therein, the Applicant stated that the purpose of the invention is "**to monitor the changes of deuterium loading into palladium**" and as shown above, loading is explicitly mentioned, despite the Examiners statement. Furthermore, said original specification teaches that said loading changes the mass. The application teaches, and continues, that this provides means to monitor the changes in cathodic mass. This is explicitly introduced on page 1 of the original specification of which this application is a Continuation.

There, the inventor wrote - separating the reactions from the vibrations,  
**"The system includes a novel cathode able to vibrate at a natural frequency, means to drive said frequency, and means to monitor said frequency, means to relate frequency changes to changes in the cathodic mass which herald said fusion reactions."**

[Original Specification, SN 07/371,937]

The Examiner, Board, and Court should note that the original specification states that the vibrations herald the reactions ... meaning that they are NOT the reactions, as the Examiner demands, but that they herald said reactions, as the original specification stated.

146. Further supporting the Applicant, and destroying the Examiner's false allegation, "loading" is further explicitly discussed, despite the false allegation by the Examiner on page 5 of the original specification of which this application is a Continuation, the inventor wrote,

**"The repetitive cut-off of the optical beam occurs due to the physical displacement of the cathode during an oscillation as described herein. These oscillations may occur during the loading of said cathode, or may occur periodically."**

[Original Specification, SN 07/371,937]

In addition, supporting the Applicant, "loading" is further explicitly discussed, despite the false allegation by the Examiner on page 13 of the original specification of which this application is a Continuation, in the Table, where the inventor wrote,

**"TABLE 2 - DERIVED VIBRATION FREQUENCIES OF VIBRATING CATHODE (Normalized to both the initial frequency and mass of said cathode, before loading with deuterons)**

[Original Specification, SN 07/371,937]

Furthermore, the original specification continues to be consistent with this, too, because on page 14 of the original specification of which this application is a Continuation, the inventor wrote and claimed,

**"A system to monitor and accelerate electrochemically induced nuclear fusion reactions, The system includes a novel cathode able to vibrate at a natural frequency, means to drive said frequency, and means to monitor said frequency, means to relate frequency changes to changes in the cathodic mass which herald said fusion reactions.**

[Original Specification, SN 07/371,937]

Thus, it can be seen in the record, that "loading" is taught in the original specification, SN 07/371,937, and that such loading or filling --as taught therein-- further changes the mass, leading to the present invention which monitors said loading.

NOTA BENE: Loading is mentioned several times in the original specification. Why does, or would, the Examiner state otherwise?

147. It can be seen in the record, further corroborating the Applicant, and again definitively proving the Examiner wrong, the previous Examiner, Mr. Wasil, separated the invention by his restriction. The Applicant has abided by that, however, the present Examiner and his supervisors are attempting to force double patenting for reasons unclear at this time. Where is the Examiner's response to the fact that Mr. Daniel Wasil, an honorable person, restricted Serial no. 07/371,937 into three inventions. Invention 1 involves "an apparatus and method for producing a vibrational frequency of a cathode". The above-entitled invention is Invention #1. Applicant preserves the right of Petition or, in the alternative, or a complaint in a Federal Court. The standards of review require the Examiner to explain precisely and substantively why he disagrees.

148. The Examiner is incorrect. Loading is mentioned several times in the original specification. Loading was discussed in every aspect of the record. Why does the Examiner disingenuously state otherwise? How is there equal justice under the Law? Where has there been a uniform standard of review? The claims are directly from the original specification, and claim exactly that which Examiner Wasil explicitly stated was the invention. The original specification of the above-entitled application, in communications with Examiner Daniel Wasil, describes Invention 1 which involves "an apparatus and method for producing a vibrational frequency of a cathode". The wording and scope of the claims maintain the wording and scope of the original disclosure and claims. Where is the explanation of why Applicant's Communication has been ignored by the Examiner. Therefore it is impossible to tell how the Examiner weighed any of Applicant's arguments. There is absolutely no way for the Applicant to present the Examiner's reasons for rejection to the Board of Appeals. Furthermore, because the Examiner was requested to answer and respond with specificity, the Examiner has apparently ignored the Office rules, and expectations of reasonable people, and has defied the laws and regulations of the Patent Office. The Applicant hereby again requests to know the substantive precise reason, scientific basis, or authority which allows the Examiner to dismiss this Argument by the Applicant without citation, analysis, or substantive coherent response.

Therefore, the Applicant requests that the Examiner reconsider because the Examiner's response is demonstrated to be inconsistent with the Office's previous actions and the record and the affiants. The Applicant requests that the Examiner explain reason for his statement if he disagrees.

149. The amendments were NOT new matter. They were actually suggested by the Examiner, added neither new matter nor issues, could not have been offered before the receipt of said suggestions pursuant to MPEP 707.07(j) and 706.03(d), were a response to, and adoption of, each suggestion suggested by the Examiner, would simplify and distinguish this invention, would conform to the Examiner's suggestions, and would enable Office compliance with MPEP 707.07 (j) and/or 706.03 (d) as was explicitly stated for the Office. It is unfair that the Office can state certain words are "new material" when the original specification and claims explicitly taught these words.

In summary, the Claims 1-20 (all claims) stand rejected pursuant to 35 U.S.C. 112, second paragraph and this should be reversed, along with compliance with MPEP 707.07 (j) and/or 706.03(d).

## CONCLUSION

150. The Office should issue the patent because Applicant (now Appellant) taught in the original specification and claims how his apparatus works and claimed the invention. Applicant thereafter has made a diligent effort to amend the claims of this application to fully comply with the Examiner so that Claims 1-20 define a novel structure which is also submitted to render said claimed structure unobvious because it produces new and unexpected results of great utility.

The Office should issue the patent because Applicant timely responded to the Examiner and clearly and substantively demonstrated that any combination of the cited art is an improper one, for reasons of timeliness, and for the lack of features which only exist in the present invention, such that none the cite references appears to suggest, or allude to, or teach a structure as defined by the teachings of the original specification of the above-entitled application or claimed by Claims 1-20.

The Office should issue the patent because Applicant has explained in detail (*supra*) how the other cited art are different and therefore produce a different result from the present invention. The figures and claims of the cited art are intended to, and do, serve a different purpose than does the structure defined by the claims, and each of the cited art adds nothing of substance. None of the cited references shows a method and system to measure the loading deuterons within a cathode loaded with said isotope of hydrogen, as the Examiner inaccurately purports.

**151. The Office should issue the patent because Applicant has given several lists of critical features and components in relation to the figures of the original specification and claims which distinguish Applicant's invention from the cited art, and which allow the present invention to operatively function in a different manner compared to said cited art.**

152. The Office should issue the patent because the cited references do not have a vibrational cathode like the present invention [shown in the Figures of the original specification of the above-entitled invention].

Only the above-entitled invention uses palladium which has the unique property of internally filling ("loading") with hydrogen, as a sponge fills with water, where the 'vibrational electrode' is monitored for its natural frequency to reveal information about the electrode, specifically for information about "how much" hydrogen is within the electrode based upon a mass change of said electrode that results from said loading.

Only the above-entitled invention uses *in situ* monitoring non-invasively and without disturbing the reactions - which are features of great and significant utility to solve the long-standing problem of monitoring the electrode.

Only the above-entitled invention makes it unnecessary to interrupt the electrical circuit because in the present invention means are provided to vibrate the electrode and, simply put, the 'vibrational cathode' is monitored to reveal information about the electrode. This monitoring occurs remotely and non-invasively and without disturbing the reactions - features of great utility. These are novel and non-obvious features of obvious great utility. It is shown in Figure 4 and taught on pages 8 and 9 of the original specification of the above-entitled invention. It is not in the cited references. Where are these features, methods, and purpose, in the cited references like the Examiner falsely purports?

153. The Office should issue the patent because Applicant asked the Examiner to confer the parts of the previous Communication from the Applicant that he may have inadvertently or unintentionally missed (*supra*), and to reconsider. There was no response. Applicant formally requested that the Examiner respond in full with specificity as to the reason to facilitate Appeal, with the Examiner making clear on the record with precision which of these submitted averments by each Declarant regarding operability and utility were formally considered, and if the Examiner disputes them, exactly how he reached his conclusion, and why by substantive and adequate explanation how the Declarations failed to overcome the *prima facie* case initially established by the Examiner. The Examiner refused to respond.

The Office should issue the patent not only because Applicant has met the standards of review, and not only because the Applicant has supported his work with both peer-reviewed publications and Declarations, but because the Office purports in its latest Communications that Japan has stopped all cold fusion research, but Applicant has demonstrated Japanese cold fusion efforts did preceed World War II (*supra*) and do continue and accelerate to this day, and in several Japanese laboratories and companies including Mitsubishi (*supra*). The Office was incorrect and that is important because Japan gives patents on cold fusion because technologies are important to Japanese security and consistent with the Japanese Constitution. Fewer patents are issued in Japan, but Japan issues patents on cold fusion.

The Office should issue the patent because the US Patent Office has ignored the US Constitution and US security and US citizens' civil rights to withhold reasonable cold fusion patents even though "(m)ost patent applications submitted to the U.S. Patent and Trademark Office are approved". And they are, including astrology patents to predict lottery numbers. The mathematics of the Office's systematic discrimination and warfare upon the inventive American citizenry for fourteen years speaks indelibly for itself. The Office is in breach of its responsibility, and the aegis of authority granted to it by Congress under the United States Constitution.

154. The Office should issue the patent because Also presented to, but ignored by the Examiner, the Applicant made substantive arguments rebutting the Examiner's position in Applicant's Communication dated 10/22/03 which was a significant and complete response to the Office's Communications of 7/903 and 9/27/03, and in Applicant's Communication dated 11/25/03 which was a significant and complete response to the Office's Communication of 11/5/03, and in Applicant's Communication dated 1/28/04 which was a significant and complete response to the Office's Communication of 1/13/04.

The Office should issue the patent because Also presented to the Office was a Petition to the Commissioner dated 1/28/04 which was a significant and complete response to the Office's Communications.

The Office should issue the patent because Applicant notes that the U.S. Supreme Court has ruled that any *pro se* litigant is entitled to less stringent standards [U.S. Rep volume 404, pages 520-521 (72)].

155. The Office should issue the patent because based upon the facts cited here, and the submitted Declarations and the peer-reviewed published papers proving validation both *de jure* and *de facto*, these Claims 1-20 are patentable over the cited references because the claims recite novel structure and thus are distinguished physically over every reference [Sec. 102], with physical distinctions which effect new and unexpected results, thereby indicating that the physical distinction is simply not obvious [Sec. 103].

WHEREFORE for the above reasons, including the timely-submitted Declarations which did refute the Office and the peer-reviewed published papers which did refute the Office, together proving validation both *de jure* and *de facto*, the Appellant respectfully requests reconsideration and reversal of Claims 1-20 which are rejected under 35 U.S.C. 112, first paragraph, "as failing to comply with the enablement requirement", Claims 1-20 which are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, Claims 1, 3-7 which are rejected under 35 U.S.C. 102(b) as being anticipated by JP-06-018683, Claims 8-20 which are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 06-018683 in view of any one of Wang et al. (U.S. 5,495,767), Steinlecher et al. (U.S. 5,883,715) or Zang et al. (U.S. 5,838,439), and Claims 1-20 which are rejected under 35 U.S.C. 101. The Board should at least issue an order compelling the Office to substantively respond to the Declarations discussing operability and utility.

Respectfully submitted,



Mitchell R. Swartz, ScD, MD, Appellant, *pro se*

**Certificate Of Mailing [37 CFR 1.8(a)]**

To Whom it Does Concern:

I hereby certify that this correspondence will be deposited with the United States Postal Service by First Class Mail, postage prepaid, in an envelope addressed to

"Office of the Clerk, Board Of Patent Appeals  
c/o The Commissioner for Patents, Alexandria, VA 22313-1450"  
on the date below.

Thank you.

Sincerely,

July 2, 2004



M.R. Swartz

**APPENDIX A  
THE CLAIMS INVOLVED IN THE APPEAL ['480]**

1. In a process for producing a product using a material which is electrochemically loaded with second material, a method of monitoring the loading within said material that comprises:  
loading said second material,  
mechanically coupling said material so as to enable a mechanical vibration of said material,  
providing means to drive said vibration,  
providing means to follow the frequency of said vibration.
2. A process as in claim 1 wherein the frequency of said vibration is followed by the material producing interference with an optical beam.
3. A process as in claim 1 wherein said material is a member of the group consisting of palladium and palladium alloys.
4. A process as in claim 1 wherein said second material is a member of the group consisting of deuterium or deuterons.
5. A process as in claim 1 wherein said means to provide drive of said vibration comprises coupling said material to a second mass located external to said material.
6. A process as in claim 5 wherein said second mass is an electromechanical device capable of a vibration.
7. A process as in claim 1, where the material is loaded as an electrochemical cathode.
8. In a process for loading a material with a second material, a method of monitoring the loading within said material that comprises:  
loading said second material,  
mechanically coupling said material so as to enable a mechanical vibrations of said material,  
providing means to produce said vibrations,  
providing means to detect the frequency of said vibrations.

9. A process as in claim 8, where the material is loaded electrochemically.
10. A process as in claim 8 wherein the frequency of said vibration is followed by the material producing interference with an optical beam.
11. A process as in claim 8 wherein said material is a member of the group consisting of palladium and palladium alloys.
12. A process as in claim 8 wherein said second material is a member of the group consisting of deuterium or deuterons.
13. A process as in claim 8 wherein said means to drive said vibration is provided by additional coupling also to a longitudinal mass capable of providing restoring force along its length.
14. A process as in claim 8 wherein said means to drive said vibration comprises coupling said material to a second mass located external to said material.
15. A process as in claim 14 wherein said second mass is capable of having at least one vibrational frequency.
16. A process as in claim 14 wherein said second mass is driven by an electromechanical device .
17. An apparatus to monitor the loading of a material by a second material which includes in combination:  
means to load said second material,  
means to enable mechanical vibrations of said material by mechanically coupling said material,  
means to drive said vibrations,  
means to monitor the frequency of said vibrations.
18. An apparatus as in claim 17 wherein said material is a member of the group consisting of palladium and palladium alloys.
19. An apparatus as in claim 17 wherein said second material is a member of the group consisting of deuterium or deuterons.
20. An apparatus as in claim 17 wherein said means to load said second material in the material is electrochemical.

**APPENDIX B**  
**THE CLAIMS WITH THE AMENDMENTS**  
**WHICH HAVE NOT BEEN ENTERED [Submitted after Final]**

- 1.(amended, corrected) In a process in which a material is electrochemically loaded with second material, a method of monitoring the loading within said material that comprises: loading said second material,  
driving a mechanical vibration of said material loaded with second material,  
monitoring the frequency of said vibration, and  
relating said frequency of said vibration to the mass of said material.
2. A process as in claim 1 wherein the frequency of said vibration is followed by the material producing interference with an optical beam.
3. A process as in claim 1 wherein said material is a member of the group consisting of palladium and palladium alloys.
4. A process as in claim 1 wherein said second material is a member of the group consisting of deuterium or deuterons.
5. A process as in claim 1 wherein said means to provide drive of said vibration comprises coupling said material to a second mass located external to said material.
6. A process as in claim 5 wherein said second mass is an electromechanical device capable of a vibration.
7. A process as in claim 1, where the material is loaded as an electrochemical cathode.
8. (amended, corrected)  
In a process for loading a material with a second material, a method of monitoring the loading within said material that comprises:  
loading said second material,  
mechanically driving said material so as to enable a mechanical vibrations of said material,  
providing means to produce said vibrations,  
providing means to detect the frequency of said vibrations, and  
relating said frequency to the mass of said material.
9. A process as in claim 8, where the material is loaded electrochemically.

10. (amended, corrected)

A process as in claim 8 wherein the frequency of said vibration is determined by the material producing interference with an optical beam.

11. A process as in claim 8 wherein said material is a member of the group consisting of palladium and palladium alloys.

12. A process as in claim 8 wherein said second material is a member of the group consisting of deuterium or deuterons.

13. A process as in claim 8 wherein said means to drive said vibration is provided by additional coupling also to a longitudinal mass capable of providing restoring force along its length.

14. (amended, corrected) A process as in claim 8 wherein said means to drive said vibration comprises coupling said loaded material as a first mass to a second mass located external to said material.

15. A process as in claim 14 wherein said second mass is capable of having at least one vibrational frequency.

16. A process as in claim 14 wherein said second mass is driven by an electromechanical device.

17. (amended, corrected) An apparatus to monitor the loading of a material by a second material which includes in combination:

means to load said second material,

means to enable mechanical vibrations of said material loaded with said second material,

means to drive said vibrations,

means to monitor the frequency of said vibrations, and

means to relate said frequency to the mass of said material.

18. An apparatus as in claim 17 wherein said material is a member of the group consisting of palladium and palladium alloys.

19. An apparatus as in claim 17 wherein said second material is a member of the group consisting of deuterium or deuterons.

20. An apparatus as in claim 17 wherein said means to load said second material in the material is electrochemical.

## APPENDIX C

### ICCF10: A Message from the Front

As we send this issue of Infinite Energy to our printing company in Manchester, New Hampshire in early September, we have just returned from the exhilarating Tenth International Conference on Cold Fusion (ICCF10) in Cambridge, Massachusetts, very near and also at MIT. Yes, there was an historic set of excess-heat-producing cold fusion demonstrations at Prof. Peter L. Hagelstein's offices at MIT in the Dept. of Electrical Engineering and Computer Science! There is a staggering amount of news about cold fusion and low-energy nuclear reactions (LENR) to report from the conference <a lot to digest even for a veteran attendee of ICCF's. Time and space do not allow a lengthy report in this Infinite Energy, but it is likely that by the time you receive this issue I will have posted a special review of ICCF10 on our web site [www.infinite-energy.com](http://www.infinite-energy.com). Of course, there will be a full hard-copy report in the next issue of the magazine (out in November), and readers should also consult the material being posted on [www.lenr-canr.org](http://www.lenr-canr.org). Infinite Energy's non-profit New Energy Foundation, Inc. plans to offer soon one or more DVD's that will highlight important conference lectures < and possibly a set of DVD's covering the entire conference.

For now and to whet your appetite for more information, here are some of the high points to be taken from ICCF10:

During ICCF10, Dr. Mitchell Swartz's palladium Phusor/low electrolyte conductance heavy water/platinum cell performed flawlessly in Prof. Hagelstein's lab at MIT. Its excess power ranged from 167% to 267% as Dr. Swartz altered the experimental conditions. This excess heat, as measured by his precision calorimeter, persisted from Sunday August 24 to August 30, longer than ICCF10 itself. The excess heat was interrupted on the last day only to bring the equipment back to Wellesley, MA, otherwise it would have continued much longer.

Prof. John Dash of the physics department at Portland State University in Oregon and his summer high school student interns also put on historic demonstrations of excess heat at Prof. Hagelstein's lab. They used simple but effective calorimetric apparatus, which allowed observers to check the level of excess heat for themselves. This proves that even high-school students can be more effective on the frontiers of science than the US Department of Energy and the 1,000-plus MIT professors who did not attend ICCF10. Only two MIT professors attended < Prof. Hagelstein and ex-Prof. Keith Johnson, both of whom have been involved in the field since its early days. (This, despite the 150 to 200 ICCF10 posters that I had earlier placed around MIT and a prominent ad in the Boston

Globe which Prof. Hagelstein paid for from his personal funds.) Only a few MIT students showed up (outnumbered by the high-school students in Prof. Dash's group from Portland State University in Oregon. (It should be noted that both the Boston Globe and the Boston Herald chose to boycott the conference, despite having been repeatedly alerted about its significance.)

Helium-4 correlated with excess heat has been observed now in a solid-state LENR device by a laboratory effort sponsored by the Italian government. The astonishing nuclear transmutation experiment carried out by the Iwamura group at Mitsubishi Heavy Industries Advanced Technology Division, which was reported in Infinite Energy (No.47, pp.14-18) and later published in the Japanese Journal of Applied Physics has now been reproduced by the A. Takahashi group at Osaka University. In this experiment, deuterium (heavy hydrogen) gas is made to flow through a palladium membrane onto which another element, such as cesium or strontium, has been deposited. With no energy input (other than the pressure of the gas) the deposited element transmutes to another element. For example, cesium declines and the rare earth element praseodymium appears and grows. Or, strontium declines and molybdenum grows. The term 'grow' is appropriate, since to make the new elements, it is necessary for the starting nuclei to 'absorb' four deuterium nuclei! Obviously, this flies completely in the face of every cannon of basic chemistry, but the evidence for the result is now overwhelming. It is nothing short of modern alchemy.

There is much more, but I need to end these highlights. Though the 'cold fusion war' has not yet been won and it could still be lost, the field seems to have picked itself up with the remarkable turning point of ICCF10.

Dr. Eugene Mallove  
September 2, 2003

Dr. Mallove was brutally murdered May 14, 2004 while working to bring cold fusion forward to help the citizens of the United States of America.

**APPENDIX D**

ZerÆpoint®  
8200A Bull's Ferry Rd. #2  
North Bergen, NJ 07047

September 1, 2003

Mr. Al Gore

Dear Al,

... My more strategic issue concerns energy. I've included some articles with the same kind of investigative details about First Energy and their links to the current "ruling faction" in Washington. However, I've also included the list of attendees from last week's "10th International Conference on Cold Fusion" and highlighted some of the names, titles and entities the attendees represented. No, cold fusion is not yet ready for full-scale commercialization. Yes, cold fusion is real and deserves research funding. Interestingly, Dr. Peter Hagelstein of MIT was the conference chair. He did a magnificent job. There was even a "field trip" from the hotel where the conference was held in Cambridge, to Room 568 in Building 36 at MIT where a live "overunity" (more-power-out-than-in) cold fusion experiment was hosted by Dr. Mitchell Swartz.

I learned first-hand at this conference that the very academic "cold fusion community" is far more interested in determining the physical and chemical equations in the languages they know than they are in understanding how the simple spark has enough energy in it to melt aluminum. They appear to go to great lengths to overcomplicate things, but that is understandable, since it conforms to the paradigms they are most accustomed to. .... Two names on the conference attendee list are from Toyota Central R & D. Labs. This was most encouraging, since Toyota funded Fleischmann and Pons in France after they were "run out of town" by the American Physical Society in 1989-1990. In my letter of 7/31 to Mr. Toshiaki Taguchi, president & CEO of Toyota Motor North America, I asked Toyota to fund research into "new energy" in a new way, using a recently updated version of the artificial intelligence application that IBM used to defeat Gary Kasparov in chess in the mid-'90's. My proposed approach would include analyzing the data from ALL new energy experiments (at least as many as possible that are published) to factor out the "least common denominator(s)" in them.

Let's apply a methodology with a proven track record for determining optimal logical strategies to the search for an appropriate energy alternative to oil, gas and current-day fission nuclear power, none of which are clean, safe or economical.

Yours truly,  
John Miranda, President  
ZerÆpoint®